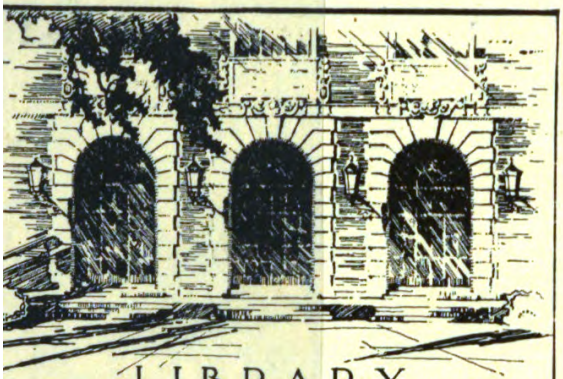
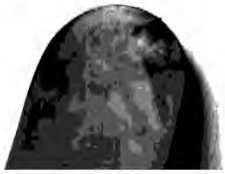


LIBRARY
OF THE
UNIVERSITY
OF ILLINOIS

031
Al 22
v.25



ALDEN'S

MANIFOLD CYCLOPEDIA

OF

KNOWLEDGE AND LANGUAGE.

WITH ILLUSTRATIONS.

VOL. 25.

MONTENEGRO—NEUTRALS.

NEW YORK:
GARRETSON, COX & CO.
1890.

Copyright, 1890,
BY
GARRETSON, COX & CO.

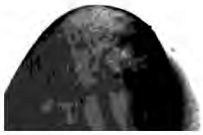
031
Al22
v.25

SCHEME OF SOUND SYMBOLS

FOR THE PRONUNCIATION OF WORDS.

Note.—(-) is the mark dividing words respelt phonetically into syllables; (′), the accent indicating on which syllable or syllables the accent or stress of the voice is to be placed.

Sound-symbols employed in Respelling.	Representing the Sounds as exemplified in the Words.	Words respelt with Sound-symbols and Marks for Pronunciation.
ā	mate, fate, fail, aye	*māt, fāt, fāl, ā.*
ă	mat, fat	*măt, făt.*
â	far, calm, father	*fâr, kâm, fâ′thėr.*
ä	care, fair	*cär, fär.*
aw	fall, laud, law	*fawl, lawd, law.*
ē	mete, meat, feet, free	*mēt, mēt, fēt, frē.*
ĕ	met, bed	*mĕt, bĕd.*
ė	her, stir, heard, cur	*hėr, stėr, hėrd, kėr.*
ī	pine, ply, height	*pīn, plī, hīt.*
ĭ	pin, nymph, ability	*pĭn, nĭmf, ă-bĭl′ĭ-tĭ.*
ō	note, toll, soul	*nōt, tōl, sōl.*
ŏ	not, plot	*nŏt, plŏt.*
ô	move, smooth	*môv, smôth.*
ö	Goethe (similar to *e* in her)	*gö′tėh.*
ow	noun, bough, cow	*nown, bow, kow.*
oy	boy, boil	*boy, boyl.*
ū	pure, dew, few	*pūr, dū, fū.*
ŭ	bud, come, tough	*bŭd, kŭm, tŭf.*
û	full, push, good	*fûl, pûsh, gûd.*
ü	French plume, Scotch guid	*plüm, güd.*
ch	chair, match	*chär, măch.*
ċh	German buch, Heidelberg, Scotch loch (guttural)	*bôċh, hī′dėl-bĕrċh, lŏċh.*
g	game, go, gun	*gām, gō, gŭn.*
j	judge, gem, gin	*jŭj, jĕm, jĭn.*
k	king, cat, cot, cut	*kĭng, kăt, kŏt, kŭt.*
s	sit, scene, cell, city, cypress	*sĭt, sēn, sėl, sĭt′ĭ, sī′prĕs.*
sh	shun, ambition	*shŭn, ăm-bĭsh′ŭn.*
th	thing, breath	*thĭng, brĕth.*
th	though, breathe	*thō, brēth.*
z	zeal, maze, muse	*zēl, māz, mūz.*
zh	azure, vision	*ăzh′ėr, vĭzh′ŭn.*



ABBREVIATIONS USED IN THIS WORK.

a., *or* adj....adjective
A.B.....Bachelor of Arts
abbr.....abbreviation, abbreviated
abl. *or* abla.ablative
Abp.....Archbishop
abt.....about
Acad.....Academy
acc. *or* ac..accusative
accom.....accommodated, accommodation
act.....active
A.D.....in the year of our Lord [*Anno Domini*]
Adjt .....Adjutant
Adm .....Admiral
adv. *or* ad..adverb
A. F.....Anglo-French
Ag.....Silver [*Argentum*]
agri.....agriculture
A. L.....Anglo-Latin
Al.....Aluminium
Ala.....Alabama
Alb.....Albanian
alg.....algebra
A.M.....before noon [*ante meridiem*]
A.M. .....Master of Arts
Am.....Amos
Amer.....America, -n
anat.....anatomy, anatomical
anc.....ancient, anciently
AN. M.. ....in the year of the world [*Anno Mundi*]
anon.....anonymous
antiq.....antiquity, antiquities
aor .....aorist, -ic
app.....appendix
appar.....apparently
Apr.....April
Ar.....Arabic
arch .....architecture
archæol....archæology
arith.....arithmetic
Ark.....Arkansas
art.....article
artil..... artillery
AS.....Anglo-Saxon
As.....Arsenic
Assoc.....Association
asst.....assistant
astrol.....astrology
astron... ..astronomy
attrib.....attributive
atty.....attorney
at. wt.....atomic weight
Au .....Gold [*Aurum*]
A.U.C.....in the year of the building of the city (Rome) [*Anno urbis conditæ*]
Aug.....August
aug.....augmentative
Aust.....Austrian
A. V.....authorized version [of Bible, 1611]
avoir.....avoirdupois
B .....Boron
B.....Britannic
b.....born
Ba .....Barium
Bart.....Baronet
Bav.....Bavarian
bl.; bbl....barrel; barrels
B.C.....before Christ
B.C.L.....Bachelor of Civil Law
B.D.....Bachelor of Divinity
bef.....before
Belg.....Belgic
Beng.....Bengali
Bi.....Bismuth
biog.....biography, biographical
biol.....biology
B.L.....Bachelor of Laws
Bohem.....Bohemian
bot.....botany, botanical
Bp .....Bishop
Br.....Bromine
Braz.....Brazilian
Bret.....Breton
Brig.....Brigadier
Brit.....British, Britannica
bro .....brother
Bulg.....Bulgarian
bush.....bushel, bushels
C.....Carbon
c.....century
Ca .....Calcium
Cal.....California
Camb.....Cambridge
Can.....Canada
Cant.....Canterbury
cap.....capital
Capt.....Captain
Card.....Cardinal
carp.....carpentry
Cath.....Catholic
caus.....causative
cav.....cavalry
Cd.....Cadmium
Ce.....Cerium
Celt.....Celtic
cent.....central
cf .....compare [*confer*]
ch *or* chh...church

ABBREVIATIONS.

Chal.....Chaldee
chap.....chapter
chem.....chemistry, chemical
Chin.....Chinese
Chron.....Chronicles
chron.....chronology
Cl.....Chlorine
Class.....Classical [= Greek and Latin]
Co.....Cobalt
Co.....Company
co.....county
cog.....cognate [with]
Col.....Colonel
Col.....Colossians
Coll.....College
colloq.....colloquial
Colo.....Colorado
Com.....Commodore
com.....commerce, commercial
com.....common
comp.....compare
comp.....composition, compound
compar....comparative
conch.....conchology
cong.....congress
Congl.....Congregational
conj.....conjunction
Conn *or* Ct.Connecticut
contr.....contraction, contracted
Cop.....Coptic
Cor.....Corinthians
Corn.....Cornish
corr.....corresponding
Cr.....Chromium
crystal.....crystallography
Cs.....Cæsium
ct.....cent
Ct.*or* Conn.Connecticut
Cu.....Copper [*Cuprum*]
cwt.....a hundred weight
Cyc.....Cyclopedia
D.....Didymium
D. *or* Dut..Dutch
d.....died
d. [l. s. d.]..penny, pence
Dan.....Daniel
Dan.....Danish
dat.....dative
dau.....daughter
D. C.....District of Columbia
D.C.L.....Doctor of Civil [or Common] Law
D.D.....Doctor of Divinity
Dec.....December
dec.....declension
def.....definite, definition
deg.....degree, degrees
Del.....Delaware
del.....delegate, delegates
dem.....democratic
dep.....deputy
dep.....deponent
dept.....department
deriv.....derivation, derivative
Deut.....Deuteronomy
dial.....dialect, dialectal
diam.....diameter
Dic.....Dictionary
diff.....different, difference
dim.....diminutive
dist.....district
distrib.....distributive
div.....division
doz.....dozen
Dr.....Doctor
dr.....dram, drams
dram.....dramatic
Dut. *or* D...Dutch
dwt.....pennyweight
dynam *or* dyn.....dynamics
E.....Erbium
E. *or* e.....East, -ern, -ward
E. *or* Eng..English
Eccl.....Ecclesiastes
eccl. *or* eccles.....ecclesiastical [affairs]
ed.....edited, edition, editor
e.g.....for example [*ex gratia*]
E. Ind. *or* E. I.....East Indies, East Indian
elect.....electricity
Emp.....Emperor
Encyc.....Encyclopedia
Eng. *or* E..English
engin.....engineering
entom.....entomology
env. ext....envoy extraordinary
ep.....epistle
Eph.....Ephesians
Episc.....Episcopal
eq. *or* =...equal, equals
equiv.....equivalent
esp.....especially
Est.....Esther
estab.....established
Esthon.....Esthonian
etc.....and others like [*et cetera*]
Eth.....Ethiopic
ethnog.....ethnography
ethnol.....ethnology
et seq.....and the following [*et sequentia*]
etym.....etymology
Eur.....European
Ex.....Exodus
exclam.....exclamation
Ezek.....Ezekiel
Ezr.....Ezra
F.....Fluorine
F. *or* Fahr.Fahrenheit
f. *or* fem...feminine
F. *or* Fr....French
fa.....father
Fahr. *or* F.Fahrenheit
far.....farriery
Fe.....Iron [*Ferrum*]
Feb.....February
fem *or* f. ..feminine
fig.....figure, figuratively
Fin.....Finnish
F.—L.....French from Latin
Fla.....Florida
Flem.....Flemish
for.....foreign
fort.....fortification
Fr. *or* F....French
fr.....from

ABBREVIATIONS.

freq.....frequentative
Fris .....Frisian
ft.....foot, feet
fut..... future
G. *or* Ger...German
G.....Glucinium
Ga.....Gallium
Ga.....Georgia
Gael .....Gaelic
Gal .....Galatians
gal.....gallon
galv.....galvanism, galvanic
gard.....gardening
gen.....gender
Gen.....General
Gen .....Genesis
gen..... genitive
Geno.....Genoese
geog .....geography
geol.....geology
geom.....geometry
Ger.....German, Germany
Goth.....Gothic
Gov.....Governor
govt.....government
Gr.....Grand, Great
Gr.....Greek
gr.....grain, grains
gram .....grammar
Gr. Brit....Great Britain
Gris.....Grisons
gun .....gunnery
H.....Hegira
H.....Hydrogen
h.....hour, hours
Hab.....Habakkuk
Hag.....Haggai
H. B. M.....His [or Her] Britannic Majesty
Heb.....Hebrew, Hebrews
her.....heraldry
herpet.....herpetology
Hg.....Mercury [*Hydrargyrum*]
hhd..... ..hogshead, hogsheads
Hind.....Hindustani, Hindu, or Hindi
hist .....history, historical
Hon .....Honorable
hort.....horticulture
Hos .....Hosea
Hung.....Hungarian
Hydros.....Hydrostatics
I.....Iodine
I.; Is.....Island ; Islands
Icel.....Icelandic
ichth .....ichthyology
Ida.....Idaho
i.e.....that is [*id est*]
Ill.....Illinois
illus.....illustration
impera *or* impr.....imperative
impers.....impersonal
impf *or* imp.imperfect
impf. p. *or* imp .....imperfect participle
improp.....improperly
In.....Indium
in... .....inch, inches
incept.....inceptive
Ind .....India, Indian
Ind .....Indiana
ind.....indicative
indef .....indefinite
Indo-Eur...Indo-European
inf.....infantry
inf *or* infin.infinitive
instr.....instrument, -al
int... .....interest
intens.....intensive
interj. *or* int.....interjection
interrog....interrogative pronoun
intr. *or* intrans...intransitive
Io... .....Iowa
Ir..... ..Iridium
Ir.....Irish
Iran.....Iranian
irr .....irregular, -ly
Is.....Isaiah
It.....Italian
Jan.....January
Jap.....Japanese
Jas.....James
Jer.....Jeremiah
Jn.....John
Josh.....Joshua
Jr.....Junior
Judg .....Judges
K.....Potassium [*Kalium*]
K.....Kings [in Bible]
K.....king
Kan.....Kansas
Kt.....Knight
Ky.....Kentucky
L.....Latin
L.....Lithium
l. [l. s. d.], *or* £..... } pound, [sterling] pounds
La.....Lanthanium
La.....Louisiana
Lam.....Lamentations
Lang.....Languedoc
lang... ....language
Lap.....Lapland
lat .....latitude
lb.; llb. *or* lbs..... } pound ; pounds [weight]
Let.....Lettish
Lev. .....Leviticus
LG.....Low German
L.H.D.....Doctor of Polite Literature
Lieut.....Lieutenant
Lim .....Limousin
Lin .....Linnæus, Linnæan
lit .....literal,-ly
lit.....literature
Lith.. .....Lithuanian
lithog.....lithograph, -y
LL.....Late Latin, Low Latin
LL.D.....Doctor of Laws
long.....longitude
Luth.....Lutheran
M.....Middle
M.. .....Monsieur
m.....mile, miles
m. *or* masc..masculine
M.A.....Master of Arts
Macc. .....Maccabees
mach... ....machinery
Mag.....Magazine

ABBREVIATIONS.

Maj.....Major
Mal.....Malachi
Mal.....Malay, Malayan
manuf.....manufacturing, manufacturers
Mar.....March
masc *or* **m**.masculine
Mass.....Massachusetts
math .....mathematics, mathematical
Matt.....Matthew
M.D..... ...Doctor of Medicine
MD.....Middle Dutch
Md.....Maryland
ME.....Middle English, or Old English
Me.....Maine
mech.....mechanics, mechanical
med.....medicine, medical
mem.....member
mensur....mensuration
Messrs. *or* **MM**.....Gentlemen, Sirs
metal.....metallurgy
metaph....metaphysics, metaphysical
meteor.....meteorology
Meth.....Methodist
Mex.....Mexican
Mg.....Magnesium
M.Gr.....Middle Greek
MHG.....Middle High German
Mic..... ..Micah
Mich .....Michigan
mid.....middle [voice]
Milan.....Milanese
mid. L. *or* **ML**.....Middle Latin, Mediæval Latin
milit. *or* **mil**.... ..military [affairs]
min .....minute, minutes
mineral....mineralogy
Minn.....Minnesota
Min. Plen..Minister Plenipotentiary
Miss.....Mississippi
ML. *or* **mid. L**...Middle Latin, Mediæval Latin
MLG.....Middle Low German.
Mlle.....Mademoiselle
Mme .....Madam
Mn.....Manganese
Mo.....Missouri
Mo.....Molybdenum
mod.....modern
Mont .....Montana
Mr.....Master [Mister]
Mrs..... .Mistress [Missis]
MS.; MSS..manuscript; manuscripts
Mt.....Mount, mountain
mus.....music
MUS.DOC....Doctor of Music
myth.....mythology, mythological
N.....Nitrogen
N. *or* **n**.....North, -ern, -ward
n .....noun
n *or* **neut**...neuter
Na.....Sodium [*Natrium*]
Nah.....Nahum
N. A., *or* **N. Amer.**North America, -n
nat.....natural
naut.....nautical
nav.....navigation, naval affairs
Nb.....Niobium
N. C. *or* **N. Car**...North Carolina
N. D.....North Dakota
Neb .....Nebraska
neg.....negative
Neh.....Nehemiah
N. Eng.....New England
neut *or* **n**...neuter
Nev.....Nevada
N.Gr.....New Greek, Modern Greek
N. H .....New Hampshire
NHG.....New High German [German]
Ni ... .Nickel
N. J.....New Jersey
NL .....New Latin, Modern Latin
N. Mex.....New Mexico
N. T., *or* **N. Test**...New Testament
N. Y.. ....New York [State]
nom .....nominative
Norm. F...Norman French
North. E ..Northern English
Norw... ...Norwegian, Norse
Nov.....November
Num.....Numbers
numis.....numismatics
O.....Ohio
O.....Old
O.....Oxygen
Obad.....Obadiah
obj.....objective
obs. *or* **†**...obsolete
obsoles....obsolescent
O.Bulg.....Old Bulgarian or Old Slavic
Oct.....October
Odontog...odontography
OE.....Old English
OF *or* **O. Fr**....Old French
OHG.....Old High German
Ont.....Ontario
opt.. .....optics, optical
Or.....Oregon
ord .....order
ord.... ....ordnance
org.....organic
orig.....original, -ly
ornith.....ornithology
Os.....Osmium
OS. ... .Old Saxon
O. T., *or* **O. Test**...Old Testament
Oxf.....Oxford
oz.....ounce, ounces
P.....Phosphorus
p.; pp.....page; pages
p., *or* **part**..participle
Pa. *or* **Penn.**Pennsylvania
paint.....painting
palæon.....palæontology
parl.....parliament
pass.....passive

pathol *or* path.....pathology
Pb.....Lead [*Plumbum*]
Pd .....Palladium
Penn *or* Pa.Pennsylvania
perf .....perfect
perh .....perhaps
Pers.....Persian, Persic
pers.....person
persp... ...perspective
pert.....pertaining [to]
Pet.....Peter
Pg. *or* Port.Portuguese
phar.....pharmacy
PH.D .....Doctor of Philosophy
Phen.....Phenician
Phil.....Philippians
Philem.....Philemon
philol. ....philology, philological
philos. *or* phil... } philosophy, philosophical
phonog.....phonography
photog.....photography
phren... ..phrenology
phys.....physics, physical
physiol... .physiology, physiological
Pied .....Piedmontese
Pl ....Plate
pl. *or* plu...plural
Pl. D.....Platt Deutsch
plupf.....pluperfect
P.M.....afternoon[*post meridiem*]
pneum.....pneumatics
P. O.....Post-office
poet.....poetical
Pol.....Polish
pol econ...political economy
polit.....politics, political
pop... ....population
Port. *or* Pg.Portuguese
poss.....possessive
pp.....pages
pp.....past participle, perfect participle
p. pr.....present participle
Pr. *or* Prov.Provençal
pref.....prefix
prep.... ...preposition
Pres.....President
pres.....present
Presb.....Presbyterian
pret.....preterit
prim.....primitive
priv.....privative
prob.....probably, probable
Prof .....Professor
pron.....pronoun
pron.....pronunciation, pronounced
prop.....properly
pros.....prosody
Prot.. .....Protestant
Prov.*or* Pr.Provençal
Prov.....Proverbs
prov.....province, provincial
Prov. Eng..Provincial English
Prus.....Prussia, -n
Ps.....Psalm, Psalms
psychol....psychology

pt.....past tense
pt.....pint
Pt.....Platinum
pub.....published, publisher, publication
pwt.....pennyweight
Q.....Quebec
qt.....quart
qtr..... ...quarter [weight]
qu.....query
q.v.....which see [*quod vide*]
R.....Rhodium
R .....River
Rb. .....Rubidium
R. Cath....Roman Catholic
rec. sec.....recording secretary
Ref.....Reformed
refl.....reflex
reg.....regular, -ly
regt.....regiment
rel. pro. *or* rel.....relative pronoun
repr.....representing
repub.....republican
Rev .. ....Revelation
Rev.....The Reverend
Rev. V.....Revised Version
rhet.....rhetoric, -al
R. I.....Rhode Island
R. N.....Royal Navy
Rom .....Roman, Romans
Rom.....Romanic or Romance
Rom. Cath. Ch. *or* R. C. Ch.... } Roman Catholic Church
r.r.....railroad
Rt. Rev ...Right Reverend
Ru.....Ruthenium
Russ.....Russian
r.w.....railway
S.....Saxon
S.....Sulphur
s.....second, seconds
s. [l. s. d.]..shilling, shillings
S. *or* s.....South, -ern, -ward
S. A. *or* S. Amer..South America, -n
Sam .....Samaritan
Sam.....Samuel
Sans, *or* Skr.....Sanskrit
Sb.....Antimony [*Stibium*]
s.c.....understand, supply, namely [*scilicet*]
S. C. *or* S. Car....South Carolina
Scand.....Scandinavian
Scot.....Scotland, Scotch
scr.....scruple, scruples
Scrip.....Scripture [s], Scriptural
sculp.....sculpture
S. D.....South Dakota
Se.....Selenium
sec.... ....secretary
sec.....section
Sem.....Semitic
Sep.....September
Serv.....Servian
Shaks.....Shakespeare
Si .....Silicon

Sic.....Sicilian
sing..... singular
sis.....sister
Skr. *or* Sans... ..Sanskirt
Slav.....Slavonic, Slavic
Sn.... .....Tin [*Stannum*]
Soc.....Society
Song Sol...Song of Solomon
Sp.....Spanish
sp. gr.....specific gravity
sq.....square
Sr.....Senior
Sr .....Strontium
....Saint
. .. .street
stat.....statute
S.T.D.....Doctor of Sacred Theology
subj.....subjunctive
suf.....suffix
Su. Goth...Suo-Gothic
superl... ..superlative
Supp..... .Supplement
Supt .. . .Superintendent
surg.....surgery, surgical
Surv.....surveying
Sw.....Swedish
Swab.....Swabian
sym.....symbol
syn.....synonym, -y
Syr.... ....Syriac, Syrian
t .....town
Ta... .....Tantalum
Tart.....Tartar
Te.....Tellurium
technol ... technology
teleg.....telegraphy
Tenn.....Tennessee
term.....termination
terr.....territory
Teut.....Teutonic
Tex.....Texas
Th.....Thorium
theat .....theatrical
theol.....theology, theological
therap.....therapeutics
Thess .....Thessalonians
Ti.....Titanium
Tim.....Timothy
Tit..... ...Titus
Tl .....Thallium
toxicol ....toxicology
tp.....township
tr. *or* trans.transitive
transl.....translation, translated
trigon.....trigonometry
Turk.....Turkish
typog.....typography, typographical
U.....Uranium
ult.....ultimate, -ly
Unit.....Unitarian
Univ.....Universalist
Univ... ...University
U. Presb...United Presbyterian
U. S... ....United States
U. S. A.....United States Army
U. S. N.....United States Navy
Ut.....Utah
V.....Vanadium
v.....verb
Va.....Virginia
var.....variant [word]
var..... variety of [species]
Ven.....Venerable
Venet.....Venetian
vet.... ....veterinary
v. i. *or* v. intr....verb intransitive
vil.....village
viz.....namely, to-wit [*videlicet*]
v. n.....verb neuter
voc .....vocative
vol.....volume
vols.....volunteers
Vt..... .Vermont
v. tr..... .verb transitive
W.....Tungsten [*Wolfram*]
W.. .....Welsh
W. *or* w....West, -ern, -ward
Wal .....Walachian
Wall.....Walloon
Wash.....Washington
Westph....Westphalia, -n
W. Ind. *or* W. I... } West Indies, West Indian
Wis.....Wisconsin
wt.....weight
W. Va.....West Virginia
Wyo.....Wyoming
Y..... Yttrium
yd.....yard
yr.....year
Zech.....Zechariah
Zeph. .....Zephaniah
Zn..... ...Zinc
zool.....zoology, zoological
Zr.....Zirconium

See also ABBREVIATIONS' in Vol. I.

ALDEN'S

MANIFOLD CYCLOPEDIA.

MONTENEGRO, *mŏn-tā-nā′grō* (often pronounced and sometimes written MONTENERO; Italian translation of the native name CZERNAGORA, 'Black Mountain'): small but independent and recently extended principality between Bosnia and Albania. Till 1878 it had an area estimated from 1,669 to 1,796 sq. m., and was separated from the Adriatic by a narrow strip of foreign territory; but the Berlin Conference assigned to M. the port and dist. of Antivari, while closing it against the war-ships of all nations. Toward the end of 1880, the port and dist. of Dulcigno (q.v.), heretofore Albanian, became Montenegrin. The latter place Turkey agreed to cede instead of an inland district indicated by the Berlin Conference; but the persistent delay of the Porte to transfer Dulcigno led to strong pressure and a naval demonstration by the western powers. Area of M. about 3,680 sq. m.; pop. about 236,000.

The country, traversed by branches of the Dinaric Alps, is very mountainous, the highest points being Dormitor in the n. (8,146 ft.), and Kom Kutchi in the e. (8,031). In the e. and s., the hills are partly clad with forests. But the higher ridges and plateaus are bare of vegetation; and being generally covered with loose masses of rock, give to M. an aspect of peculiar sterility and desolation. Yet the valleys are highly fertile; those of the Moratscha and Zeta, with the low land on the Lake of Scutari (into which the chief streams of M. debouch), form the granary of the land. The climate of the hill country, which is M. proper, is ungenial; that of the great valley and its connected region is delightful. The fisheries of the lake are productive. Agriculture is carried on wherever practicable. The exports, which may be valued at about $1,000,000, consist mainly of hides, wool, sheep, smoked mutton and bacon, sumach, cheese, and fruit; but as there are hardly any roads other than mere tracks, exports and imports alike have to be conveyed on the backs of mules, or of porters, usually women. The cap. of M., Cettigne or Cetinji, is a village of 2,000 inhabitants. The chief towns, mostly in the newly acquired territory, are Antivari (2,500), Podgoritza (4,000), Dulcigno (3,000), Niksik (3,000), Danilograd (1,500), Spuz, Zabliak, Kolasin.

The Montenegrins or Zrnagorzes are Slavs of the Servian stock, and constitute almost the whole population of the country, the exception being some Albanians and others in the new territory. The natives are handsome, athletic, and very hardy. They have many noble characteristics; their morals are pure, and their family affection strong. They are brave and patriotic, but somewhat reckless, passionate, and fierce. Their modes of warfare, formerly savage, have yielded to civilized methods. Their clan system lends itself to the perpetuation of close alliances and bitter feuds, and the hereditary obligation to avenge blood is fully recognized.

The constitution of the country is usually called limited monarchy; probably it would be safer to speak of it as an absolute hereditary monarchy, in which the council of state and the national assembly have considerable influence on the decisions of the prince. The head of the govt. 1516–1851 was the *Vladika* or prince-bishop, who, besides his proper office as ecclesiastical superior, exercised at the same time those of chief ruler, lawgiver, judge, and military leader. In 1851, the two offices were disjoined, and the vladika was restricted to his ecclesiastical office, while the cares of government were left to the *Gospodar* (hospodar) or prince. Since 1879 the state council consists of eight members, of whom half are appointed by the prince. The country is now divided into 80 districts and four military commands. Besides this, there exist the time-honored patriarchal institutions. An 'elder' presides over each village community; these small communities constitute 40 or more tribes or clans, each of which has again an 'elder' at its head; and groups of allied clans choose a *knjas*. All these various local dignitaries come together to form the *Skupschtina* or national assembly.

The language of the Montenegrins is a very pure dialect of the Servo-Illyrian Slavonic. With the exception of 7,000 Rom. Catholics and 3,000 Mohammedans in the new territory, the Montenegrins belong to the orthodox Greek Church. There are about 2,000 Montenegrins scattered in Austria, Turkey, and Russia; besides small Montenegrin colonies in Alexandria and San Francisco.

The public income amounts to about $1,500,000, and exceeds the expenditure. The public debt was paid off by Russia 1876. The prince's civil list includes $1,750 from home sources, $7,000 from Russia, and $10,000 from Austria. Except the body-guard of the prince, there is no standing army. But as all the inhabitants are trained to arms, they form a permanent militia, and are easily transformed into an army of nearly 30,000 excellent soldiers. According to a plan of reorganization contemplated 1880, there would be a first 'ban' of 26,000 men, and a second 'ban' or reserve of 8,400.

Consult Andric, *Gesch. des Fürstenthumes M.* (1853); Dutschitsch, *Zrna Gora* (1874); Gopcevic, *M. et les Montenegrins* (1877); Denton, *M.* (1877).

History.—M. belonged in the middle ages to the great

Servian kingdom, but after the dismemberment of the latter, and its conquest by the Turks at the battle of Kossovo (1389), the Montenegrins, under their prince, who was of the royal blood of Servia, maintained their independence, though compelled to relinquish the level tracts about Scutari, with their chief fortress of Zabliak, and confine themselves to the mountains (1485). In 1516, their last secular prince resigned his office, and transferred the govt. to the vladika. The Porte continued to assert its claim to M., and included it in the pashalik of Scutari; but the country was not conquered till 1714, and on the withdrawal of the Turks soon afterward, it resumed its independence. In 1710, they had sought and obtained the protection of Russia, the czar agreeing to grant an annual subsidy on condition of their harassing the Turks by inroads, and this compact has, down to the present time, been faithfully observed by both parties. Another part of the agreement was, that the archbishop or vladika was to be consecrated by the czar. In 1796, the prince-bishop, Pietro I., defeated the Pasha of Scutari, who had invaded M., with the loss of 30,000 men; and for the next quarter-century we hear no more of Turkish invasions. The Montenegrins rendered important aid to Russia 1803 against the French in Dalmatia, and took a prominent part in the attack on Ragusa, the capture of Curzola, and other achievements. Pietro II. (ruled 1830–51) made great efforts to civilize his people and improve their condition. He established the senate, introduced schools, and endeavored, though unsuccessfully, to put an end to internal feuds and predatory expeditions into the neighboring provinces. Some Turkish districts having joined M., the Turks attacked the latter 1832, but were repulsed. A dispute with Austria regarding the boundary resulted in a war, which was terminated by treaty 1840. In 1851, the last prince-bishop died, and his successor, Danilo I., separated the religious from the secular supremacy, retaining the latter under the title of Gospodar. This step caused Czar Nicholas to withdraw his subsidy (which was renewed, and the arrears paid, by Czar Alexander II.), and the imposition of taxes thus rendered necessary caused great confusion. This was taken advantage of by the Turks, who, under Omar Pasha, invaded the country; but the intervention of the Great Powers compelled a treaty 1853, Feb. 15. Danilo went in vain to the Paris conference 1857, seeking the recognition of M. as independent. In 1860, the Montenegrins excited an insurrection against the Turkish rule in the Herzegovina, which was soon suppressed, and in return they were so hard pressed by the Turks, that they were glad to agree to a treaty (1862), by which the sovereignty of the Sublime Porte over M. was recognized. Fresh complications caused M. to declare war against Turkey 1875, Jan., but a compromise was effected. M., however, supported the insurrection against Turkey that broke out in the Herzegovina a little later, and was again at war 1876, July.

The Montenegrins co-operated with the Russians against their hereditary enemy during the war of 1877–8; and the Berlin Conference (1878) recognized the independence of M., and agreed to an important extension of Montenegrin territory.

MONTENOTTE, *mōn-tā-nŏt'tā:* small village of n. Italy, 26 m. w. of Genoa. Here the Austrians were defeated by the French 1796, Apr. 12.

MONTEPULCIANO, *mōn-tā-pôl-châ'nō:* city of Italy, province of Siena, on a high hill, 56 m. s.s.e. of Florence. Numerous Etruscan remains have been excavated in the neighborhood. The wines of M. are famous. Pop. about 3,000.

MONTEREALE, *mōn-tā-rā-â'lā:* town of s. Italy, province of Aquila, 14 m. n.w. of the town of Aquila. It stands on a hill in a great plain, and has several elegant churches. There are vast chestnut-groves near M., which furnish the poor inhabitants with the chief article of their subsistence. Pop. 5,014.

MONTEREAU, *mōng-tĕh-rō':* town of France, dept. of Seine-et-Marne, at the confluence of the Seine and Yonne, 46 m. s.e. of Paris, with which there is communication by steam-boat. The manufactures are earthenware and leather. Here, 1419, Jean-sans-Peur, Duke of Burgundy, was assassinated, at the instigation and in the presence of the dauphin, afterward Charles VII.; and in the immediate vicinity, Napoleon gained his last victory over the allies, 1814, Feb. 18. Pop. (1881) 7,107.

MONTEREY, *mŏn-tė-rā':* town in Monterey co., Cal., on the bay of M., 94 m. by land s.e. of San Francisco, 80 m. by sea. Under Mexican rule it was the cap. of Cal. The M. and Salinas Valley railroad furnishes inland transportation facilities, and there is a line of steamers to San Francisco. It has a large harbor somewhat exposed on the n., but protected on the s. Its light-house is on Point Pinos. M. has a beautiful location, and the numerous Mexican adobe houses with roofs of tile give it a quaint appearance. It is the home of a Rom. Cath. bp. The ruins of the Carmelite mission are a short distance from the town. Pop. (1870) 1,112; (1880) 1,396.

MONTEREY, *mōn-tā-rā':* the most thriving city of n. Mexico, cap. of the state of Nuevo Leon; on the San Juan, a tributary of the Rio Grande, 175 m. w. of Matamoras. It is well paved and clean, stands on a broad plain, 1,626 ft. above sea-level, and is surrounded by beautiful gardens and orchards. Pop. in 1880, 33,811. From its situation, its facilities for commerce are great; and it is the entrepôt for the transport of American goods from the Rio Grande to the inland states of Durango and Zacatecas. Pop. (1880) 33,811.

The BATTLE OF MONTEREY, 1846, Sep. 19–24, was fought between 6,600 American troops under Gen. Zachary Taylor, and 10,000 Mexicans commanded by Gen. Ampudia. Regarding M. as the key to the n. provinces of

Mexico, Gen. Taylor marched s. from Matamoras, where he had been reinforced, and arrived before M. Sep. 9. Finding the city strongly fortified, Taylor began his attack Sep. 19, by opening a heavy bombardment upon it from his batteries; followed by a successful assault on the lower part of the city by Gen. Quitman's brigade, at the same time that a regt. under Gen. Butler effected an entrance at another side. The Mexicans made a stubborn defense. Each strongly built house had to be separately assailed, and its occupants driven out, so that a running fight was kept up from street to street. On the second day Gen. Worth succeeded in storming the bishop's palace, occupying the hill w. of the city, and deemed almost impregnable. The Mexicans were finally driven into the main plaza of the city on the 23d, but did not surrender until the next day. The American loss was 120 killed and 368 wounded; that of the Mexicans is unknown. It was the first battle of the war won by the Americans, and greatly encouraged them.

MONTERO, n. *mŏn-tā'rō* [Sp. *montera*—from *montero*, a huntsman—from *monte*, a mountain]: a kind of cap, properly a huntsman's cap, having a spherical crown, and a flap which could be drawn down over the ears.

MONTE ROSA, *mōn'tā rō'sâ* (*Mons Sylvius* of the ancients): highest mountain in Europe after Mont Blanc. It is in the angle where the w. end of the Pennine meets the Lepontic Alps, and separates the canton of Valais from Italy. The n. portion of the mountain is highest, and forms nine peaks, the highest of which is forked and precipitous, 15,210 ft. above sea-level. Many attempts were made to ascend this peak, but none were successful till 1855. The mountain appears to consist of mica-slate, in some places alternating with gneiss. It is rich in metallic ores, and several mines of gold, copper, and iron are worked. The highest mine is between 10,000 and 11,000 ft. above sea-level, and in the region of perpetual snow. Rye ripens to an elevation of 6,000 ft.; and the vine is found as far up as 3,200 ft.; but there is a difference of nearly 1,000 ft. in the altitude of the corresponding vegetation on the n. and s. sides.

MONTE SAN GIULIANO, *mōn'tā sân jô-lē-â'nò:* town of the island of Sicily, province of Trapani, on a high mountain 4 m. e.n.e. of the town of Trapani. On the mountain (anciently *Eryx*) are the remains of a famous temple of Venus. Pop. 3,250.

MONTE SANT' ANGELO, *mōn'tā sânt ân'jā-lō:* city of s. Italy, province of Foggia (formerly Capitanata), 28 m. n.e. of Foggia; on one of the Gargano group of hills, at a height of 2,790 ft., and has numerous fine churches. It is famed for exquisite honey, gathered from the odoriferous alpine plants of the mountain. Pop. 14,936.

MONTE SARCHIO, *mōn'tā sâr'kē-ō:* town of s. Italy, province of Benevento, 13 m. n.w. of Avellino, on the torrent Correo. Pop. 5,600.

MONTESQUIEU, *mŏn-tĕs-kū'*, F. *mōng-tĕs-ke-ĕh'*, CHARLES LOUIS DE SECONDAT (Baron DE LA BRÈDE ET DE MONTESQUIEU): philosophical historian: 1689, Jan.—1755, Feb. 10; b. at his father's château of La Brède near Bordeaux; descended from one of the most distinguished families of Guienne. In his youth he was a hard student of jurisprudence, literature, and philosophy. His love of the classical authors was so great, that at the age of 20 he composed a work intended to show that they did not deserve eternal damnation for being pagans. In 1714, he was appointed a councilor of the parliament of Bordeaux, and two years later, pres. of the parliament. His first (published) work was his famous *Lettres Persanes* (Par. 1721), in which, in the character of a Persian, he ridicules with exquisite humor, and clear, sharp criticism, the religious, political, social, and literary life of his countrymen. Although he did not spare the Academy in these *Lettres*, he was admitted a member of it 1728, and would have been admitted sooner, if Cardinal Fleury had not objected on the ground of his jests against religion. In 1726, M. resigned his office in the parliament of Bordeaux, and spent some years in foreign countries. In England, he spent two years, during which he was much in the company of Lord Chesterfield, and was treated with the greatest respect by the most distinguished personages. After his return to Brède, he published *Considérations sur les Causes de la Grandeur et de la Décadence des Romains* (Par. 1734), a masterly view of Roman history, expressed in a sententious, oracular, and vigorous style—the first important essay in the philosophy of history. It was followed, after a long interval, by his *Dialogues de Sylla et de Lysimaque* (Par. 1748), published under an assumed name, in which the motives and feelings of a despot are skilfully analyzed. In the same year appeared his great work, on which he had been engaged for 20 years, the *Esprit des Lois* (2 vols. Geneva 1748), aimed to exhibit the relation between the laws of different countries and their local and social circumstances. It was immensely popular. No fewer than 22 editions were published in 18 months, and it was translated into various European languages. The *Esprit des Lois* is a wonderfully good book, considering the age in which it appeared; by an excellent critic it has been declared 'one of the most important books ever written.' Certainly it is in its department one of the wisest. Without adopting Voltaire's hyper-eulogistic criticism, that 'when the human race had lost their charters, Montesquieu rediscovered and restored them,' it may be said that it was the first work in which the questions of civil liberty were ever treated in an enlightened and systematic manner, and to M., more than to any other man, is it owing that the science of politics has become a favorite subject of study with the educated public. It is interesting to note that M., before publishing the work, submitted it to a committee of his literary friends, six in number, some of much eminence, who unanimously, though with differing

reasons, advised against its publication. It has been pointed out that the literary method as well as the thought of the *Esprit des Lois* is accordant more with English than with French standards: this may account for the fact that its popularity has always been greater in England and the United States than in M.'s own country. M. died at Paris. Of numerous editions of his works, by far the best is that by Édouard Laboulaye (7 vols. Par. 1875–79). See his Life by Louis Vian (2d ed. Par. 1879), and Dangeau's *M.*, *Bibliographie des ses Œuvres* (Par. 1874).

MONTEVIDEO, *mŏn-tē-vĭd′ē-ō*, Sp. *mōn′tā-vē-tha′o*, SAN FELIPE Y SANTIAGO DE: city, capital of the republic of Uruguay, S. America; on the n. shore of the estuary of the Rio de la Plata (here 65 m. wide), and 132 m. e. by s. from Buenos Ayres, with which it has daily communication by an excellent line of steam-vessels. It stands on a small peninsula, and is surrounded by a wall and fortifications. The houses are mostly of one story, with flat roofs. Of public buildings worthy of notice are the cathedral, the town-hall, and the new market. The climate is healthful; but as there are no rivers near the town, water is scarce, and till 1870—when it was introduced by a new aqueduct 40 m. long—was obtainable only from wells, or by collecting rain-water in cisterns. The bay or harbor, about 3½ m. long by 2 broad, presents good facilities for building wharfs, docks, etc., is sheltered from all but the s.w. gales, and averages 16 or 17 ft. in depth; but its depth has diminished about 5 ft. in this century; while its sheltered part, called the harbor, also is shoaling year by year, so that large vessels are compelled to anchor farther out and in an unsafe position. There are plans for its improvement, but they are not prosecuted with energy. The trade of M. V. is extensive; the exports consisting of wool, hides, hair, tallow, salt and dried beef, bones, etc.; and the imports, of cotton and woolen fabrics, hardware, also flour, wine, spirits, and other provisions. The chief trade is with Great Britain. M. has steam-communication with the United States, Rio Janeiro, Britain, and Genoa; and has considerable trade with France, Spain, La Plata, and Italy. In 1880 entered 1,076 vessels, of 794,443 tons; and 871, of 713,177 tons, cleared the port. Imports 1880 amounted to about $16,167,500; exports to about $10,238,800. Pop. (1862) with the small suburbs Cordon and Aguada 45,765; (1871) 105,296; (1883) with its environs 110,167.—For the history of M., see URUGUAY.

MONTEZUMA I., *mŏn-tē-zō′ma*, Emperor of Mexico—the most able of the Mexican emperors: ascended the throne about 1437; died 1471. Early in his reign he commenced a war with the neighboring monarch of Chalco, which resulted in the annexation of that kingdom to Mexico. Tlatelolco, Cuihixcas, and Tzompahuacan were afterward annexed. Some reverses which his arms now suffered led to a confederacy of the Tlascalans and two other powerful tribes against him; but in the war which followed, M.'s arms were again signally triumphant, and the territories of the conquered tribes increased the domain of the now all-powerful Montezuma.

MONTEZU′MA II., Emperor of Mexico—the last before its subjugation by the Spaniards: succeeded to the throne 1502; died 1520, June 30. He had distinguished himself as a warrior during the reign of his predecessor, and after his accession, carried the terror of his arms to the frontiers of Nicaragua and Honduras. He was at the same time a member of the priestly order, and did not demit his functions on his accession. He devoted his chief attention to the improvement of the laws and of the internal administration, and displayed his taste for pomp and luxury by the magnificence of his household arrangements and a profuse embellishment of his capital. This necessitated heavy taxation, which, combined with the strictness of his administration, led to continual revolts among his subjects, especially those who had lately come under his sway. When Cortes landed in Mexico with his small army 1519, M., blinded by an old prophecy, and by the strange appearance of the invaders, acknowledged them as beings of a superior order, and as his masters (see CORTES). The inhabitants of Mexico having risen against Cortes, the latter caused M., who was then his prisoner, to appear in order to pacify them; but being wounded accidentally by a stone flung from among the crowd of his own subjects, he so keenly felt the indignities which he had suffered, that he repeatedly tore the dressing from his wound, and soon afterward died. Some of his children adopted the Christian religion, and his eldest son received from Charles V. the title Count of Montezuma. One of his descendants was viceroy of Mexico 1697–1701. His last descendant, Don Marsilio de Teruel, Count of Montezuma, was banished from Spain by Ferdinand VII., and afterward from Mexico, on account of his liberal opinions, and died at New Orleans 1836.

MONTFERRAT, *mōnt-fār-rât′:* formerly an independent duchy of Italy, between Piedmont, Milan, and Genoa, now forming part of the kingdom of Italy. It consisted of two separate portions, Casale and Acqui, between the Maritime Alps and the Po; more than 1,300 sq. m.; cap. Casale. M., after the downfall of the Frankish empire, was ruled by its own margraves till the beginning of the 14th c. This illustrious house for a long time disputed the sovereignty of Piedmont with the House of

Savoy, and sent to the crusades more heroes than any other sovereign house in Europe. Members of the family ruled simultaneously in M., Thessaly, and Jerusalem. On the death of the Marquis John I., 1305, his sister, Iolande or Irene, Empress of Constantinople, succeeded to M.; and her second son became the founder of the family of Montferrat-Palæologus, which became extinct 1533, and M. passed to the Gonzagas of Mantua. In 1631, the dukes of Savoy obtained possession of a portion of M., and 1703, with the consent of the German emperor, the remaining portion passed under their sway, and was incorporated with their own dominions.

MONTFORT, *mŏnt'fort*, F. *mōng-for'*: noble French house, descended, according to the most probable opinion, from Baldwin, Count of Flanders, and Judith, daughter of Charles the Bald. AMAURI 2d, Seigneur de M. (a little town between Paris and Chartres), is the first of the family mentioned in history. He lived in the first half of the 11th c. His son, SIMON 1st, had for his third wife Agnes, daughter of Richard, Comte d'Evreux. He left four sons, of whom only AMAURI 4th had issue. The grandson of this Amauri, SIMON 3d, surnamed the *Bald*, Comte de M. and Evreux, married Amicie, daughter of Robert de Beaumont, Earl of Leicester. His second son was the famous SIMON 4th, Comte de M. and Earl of Leicester, subsequently Comte de Toulouse (abt. 1150–1218, June 25), conspicuous in the terrible crusade against the Albigenses (q.v.). In 1198, he went to Palestine at the head of a troop of French knights, but failed in doing anything against the Saracens, and was compelled to return. In 1202, he joined the 4th crusade, which, however, had no religious design at all (see CRUSADES), in consequence of which M. abandoned it. In 1209, he took part in the war of extermination against the Albigenses. He signalized himself by relentless ferocity and his brilliant successes, but was killed by a stone at the siege of Toulouse. He was father of Simon de M., Earl of Leicester.

MONTFORT, SIMON DE, Earl of Leicester: about 1200–1265, Aug. 4; b. France; fourth son of Simon 4th, who was Comte de M. and Earl of Leicester. The title Earl of Leicester came to M. by his grandmother, Amicie de Beaumont, sister and heiress of Robert, Earl of Leicester; but he did not directly or immediately inherit it, for, during the reign of King John, it was borne by Ranulf, Earl of Chester. Some time after the death of Ranulf, M. came to England, and offered his services to Henry III. Already he had great reputation as a warrior, and Henry was so highly pleased with the young French noble, that he conferred on him the title Earl of Leicester. Little did Henry think that the stranger was to prove against himself a great founder and champion of English constitutional liberty. He married Elinor, sister of King Henry III., youthful widow of that Earl of Pembroke to whom, more than to any

other, the people of England owe Magna Charta. After this marriage—which was viewed with disfavor by the king—De M. became a steadfast advocate of the English Charter and of the liberties of the people as against oppression by the crown and undue exaction by the Roman see. After visiting the East, he was sent by the king to undertake the command of Gascony. In 1257, the king's debts were so great, and the rapacity of his foreign relations so unbearable, that the people were in a state of insurrection. The barons assembled, and, under the direction of De M., held the celebrated parliament at Oxford. They passed statutes to enforce the provisions of Magna Charta. The king swore to observe them, but sent forthwith to the pope, praying to be absolved from his oath. The bull of absolution arrived. Henry set his barons at defiance, shut himself up in the Tower, and appealed to Louis of France. England was now in arms. The whole middle class looked up to De M. as their champion and leader, and the war began with the battle of Northampton. The wars of the barons, under De M., have been superficially viewed as the strife of turbulent nobles, who, in the absence of foreign warfare, employed themselves in a contest at home. Later researches, however, have shown that, but for the struggles of De M. and the barons, the concessions at Runnymede would have been a mere worthless parchment. At Lewes, the royal forces were signally discomfited, and the king taken captive. A French chronicler, who praises De M. as 'noble, chivalrous, and the ablest man of the age,' expressly adds that he was 'backed by the general favor of the people,' who at this time were 'unspeakably trampled under foot, and deprived of all their liberties.' The conditions exacted from the king were, that he should observe Magna Charta and the Charter of the Forests; be moderate in his expenses and grants, until his old debts were paid off, and until he was enabled to live on his own property, without oppression of merchants or the poor; and that Englishmen only should be chosen counselors. No new pretensions were introduced, even at this moment of triumph, and the constitutional maxim of respecting the person of the king was carefully upheld. The queen (Elinor of Provence), who was in France, now occupied herself in collecting a large army. To deliberate on the measures to be adopted at this great crisis, writs were issued to the sheriffs, 1265, by De M., directing them to return two knights for each county, and two citizens or burgesses for every city and borough; and from this time may be clearly dated the recognition of the commons as an estate of the realm in parliament. Guardians had been appointed by the barons to watch over the execution of Magna Charta, but 50 years of encroachment on the part of the crown convinced De M. that a stronger and more enduring security would be to commit the care of constitutional freedom thenceforth to the people themselves, whose interests the

barons thus identified with their own. Mr. Blaauw, who, in his *Barons' War*, presents De M. almost for the first time in his true character, against the mistaken statements accepted by Hume and others, adds, that 'it should be an honest pride to us in after-times that English liberty thus owes its birth to the noblest parentage, confidence in the people': probably it would be more accurate to speak, in connection with De M., not of the 'birth' of English liberty, but of its furtherance at an important crisis. A second war broke out, and this time the popular cause was weakened by defection and treachery. Prince Edward (afterward Edward I.) encountered the barons at Evesham, with a greatly superior army. When defeat was inevitable, the great leader refused to flee. He 'fought stoutly like a giant for the liberties of England,' but fell, overwhelmed by numbers. The death of De M. filled the whole land with mourning. Like Cromwell, whose career in many respects resembles his own, he was denied a grave by the royalists, his head being sent to Wigmore Castle, and his mutilated limbs to different towns; but the people bewailed their dead champion, and the clergy pointed to his glorified spirit in heaven: the people even revered him as a saint and martyr, and invoked his intercession. The influence of De M. was such after his death that it was not deemed prudent to put to death any of the barons who had borne arms against his sovereign; and though the Oxford statutes were formally rescinded, their spirit remained. See *Life*, by M. Creighton (1876), and *Simon de Montfort*, by Pauli, translated by Una M. Goodwin (1876).

MONTGOLFIER, *mŏnt-gōl′fĭ-ėr*, F. *mōng-gol-fe-ā′*, JACQUES ÉTIENNE; and JOSEPH MICHAEL: two brothers, distinguished as inventors of the first kind of Balloons (q.v.): Étienne d. Servières 1799: Joseph, the elder brother, d. Paris 1810. They were sons of a noted paper-manufacturer at Annonay, dept. of Ardèche, and early engaged in the same industry. Etienne, after a few successful experiments with the balloon, repaired to Paris; but though his discovery created a great sensation, and was followed out in practice by many eminent men, he obtained little pecuniary aid in carrying on his experiments, and at length retired to his native town, and there resumed the manufacture of paper.—The elder brother, Joseph, had much genius and little education; but the two brothers were fitted to supplement each other's deficiencies, and together they made many discoveries, and both were received as members of the French Acad. Joseph invented the hydraulic screw, the calorimeter, etc., and in the latter part of his life filled a post in the dept. of arts and manufactures.

MONTGOMERY, *mont-gŭm'ĕr-ĭ:* city, cap. of Montgomery co. and of the state of Alabama, on the Alabama river, 180 m. n.e. of Mobile by railroad, 330 m. by steamer. Four railroads, the Louisville and Nashville, Western, Georgia Central, and M. and Florida, furnish connection with all inland points, while steamers connect with Mobile lines for various domestic and foreign ports. It is in a rich cotton-growing region, and its annual receipts of this staple range from 120,000 to 140,000 bales. In recent years there has been a great increase of manufacturing, with a rapid development of commercial interests and growth in population. The city has 12 churches, good schools, which are free and are open nine months each year, several private schools, three daily newspapers, two national and five private banks, a widows' and an orphans' home, and an infirmary for the sick and poor. M. is beautifully located and is one of the most healthful cities in the south. Water is supplied by the Alabama river, also by an artesian system which furnishes 5,000,000 gallons per day and the works for which cost $300,000. The state-house on Capitol Hill, a fine structure, was rebuilt 1851. Among notable buildings are the city hall, court-house, and masonic temple. The city is lighted by gas and electricity, and has 15 m. of electric street railroad, the plant for which cost $175,000. Nearly one-fourth of the population is engaged in manufacturing pursuits. There are a cotton-mill; two cotton-seed-oil mills, one of which is among the largest in the country, having a crushing capacity of 150 tons per day and in which $250,000 capital has been invested; two ice factories, a large flour-mill, six carriage and wagon shops, four foundries, four wood-working factories, a vinegar factory, a paper-box shop, and a brewery. Among the other manufactures are alcohol, candy, crackers, brooms, soap, and fertilizers. Six brick-yards supply building material, for which there is active demand. Large deposits of coal and iron are within 60 m. of the city, and a narrow-gauge railroad runs 50 m. to immense forests of valuable pine. M. was settled 1817, received its name from Gen. Richard Montgomery, became state cap. 1847, and was cap. of the Confederacy 1861, Feb.—1862, May. Pop. (1870) 10,588; (1880) 16,713; (1889) estimated 30,000.

MONTGOMERY, *mont-gŭm'ĕr-ĭ*, GABRIEL, Comte DE: French knight of Scottish extraction, officer in the Scottish Life-Guard of the king of France: abt. 1530–1574, May 27. At a tournament given 1559, June 30, by Henry II. in honor of his daughter's marriage with Philip of Spain, the king insisted upon young M. entering the lists with him. M. reluctantly complied, and the shaft of his broken lance entering the king's visor at the eye, Henry II. was borne insensible from the ground, and so continued 11 days, when he died. M., though blameless, left France, and soon afterward embraced Protestantism in England. On the commencement of the religious wars 1562, he returned to his native country to support

the Prot. cause, was one of the Prot. leaders, defended Rouen with great bravery, and gained advantages over the royalists. During the massacre of St. Bartholomew, he happened to be in Paris, and owed his escape to the swiftness of his horse, and fled to England. In 1574, at the head of a band of Huguenots, he landed in Normandy, and commenced war; but being compelled at last to surrender the castle of Domfront, he was carried to Paris; and though the general to whom he surrendered had assured him of his life, he was beheaded, after long imprisonment.

MONTGOM'ERY, JAMES: minor British poet: 1771, Nov. 4—1854, Apr. 30; b. Irvine, Ayrshire, Scotland; son of a Moravian preacher. At the age of seven years he was sent to the Moravian settlement at Fulneck, near Leeds, to complete his education for the Moravian pastorate. At Fulneck, the course of study seems to have been too severe in its character for the young poet; the imaginative side of his mind was allowed no recognition, and it was only by stealth that he read Cowper's poems and *Robinson Crusoe*. Much of his leisure at school was employed in the composition of verses and of music. In 1789, he ran away, and, after four years of various employment, became engaged as clerk to the editor of *The Sheffield Register*, for which he soon began to write political articles. In 1794, he commenced a newspaper of his own, *The Sheffield Iris*, which he continued to edit till 1825, when he retired. During his editorship, M. was twice subjected to fine and imprisonment: 1795 he was fined £20, and sentenced to three months' imprisonment, for printing some copies of a miserable ballad in which govt. suspected that sedition lurked; and 1796 he was fined £30, and imprisoned six months, for giving an account of a Sheffield riot. He received a govt. pension of £150 in 1835, and he died at his own house in Sheffield. His principal works are: *The Wanderer of Switzerland* (1806); *The West Indies* (1809); *The World before the Flood* (1812); and *The Pelican Island, and Other Poems* (1827). A collected ed. of his minor poems appeared 1851; and 1853 his *Original Hymns for Public, Private, and Social Devotion* closed the series. See his Memoirs, of value as materials for the provincial political history of his times (7 vols. 1856–58).

His poems are melodious, full of picturesque description and the gentlest human feeling. The personages introduced in his poems are, however, only shadows, or touched with the faintest color of character. But he holds a well-defined position among the favorite poets of his country by several of his hymns and minor poems, and by his exquisite verses on Home, which commence the third part of *The West Indies*. His poetic repute has suffered somewhat by his being confused with Robert Montgomery (q.v.).

MONTGOM'ERY, JOHN BERRIEN: 1794, Nov. 17—1873, Mar. 25; b. Allentown, N. J.; entered the U. S. navy 1812, and as midshipman took part in the attack on Kingston, Canada, and the capture of Little York, Fort George, and Newark. In 1813, Sep. 10, he was with Perry when he captured the British fleet on Lake Erie, and received the thanks of congress and a sword for his gallant services. 1814, Aug., he assisted in the attack on Mackinaw. In 1815 he fought with Decatur against the Algerine pirates; and 1818, Feb., was promoted lieut. Made commander 1839, he took part in the Mexican war, in the blockade of Mazatlan, and in the capture of Guaymas on the Gulf of California. He was executive officer of the navy-yard at Washington 1849–51; 1853 was commissioned capt.; 1857 commanded the *Roanoke* and brought Walker's 250 filibusters to New York; 1859–62 commanded the Pacific squadron; 1862 was retired as commodore; and 1866 was made rear-admiral. He died at Carlisle, Pa.

MONTGOM'ERY, RICHARD: 1736, Dec. 2—1775, Dec. 31; b. near Feltrim, Ireland. Educated at Trinity College, Dublin, he entered the English army as ensign at the age of 18. In 1757 his command was ordered to Halifax, N. S., and soon afterward he took part in the siege of Louisburg, where he was made lieut.; was with Amherst in his expedition against the French on Lake Champlain in 1759; next year he became adjt.; served in the campaign against Montreal, and was made capt. 1762. Then he was ordered to the W. Indies; but, 1763, returned to New York, soon afterward going to England, where he formed the friendship of many influential liberal members of parliament. In 1772 he sold his commission, and next year came to America, bought a farm near New York, and married the daughter of Judge R. R. Livingston. He was chosen a delegate to the first provincial congress, New York, 1775, May; and in June was made a brig.gen. in the continental army, being the only officer of that rank not from New England. Owing to Gen. Schuyler's illness, M. was put in command of the expedition to Canada, and in the face of great difficulties and discouragements in a short time took the forts of St. Johns and Chambly, and, 1775, captured Montreal. His army by this time numbered only about 300 men, to which Arnold's command of 600 men was added, with which meagre force he besieged Quebec 1775, Dec., having been promoted to maj.gen. for his services. The cold weather, the breaking out of small-pox in the army, and the fact that the term of service of most of his men was about to expire, constrained him to urge an immediate assault on the city. He himself led the attack on the s. part of the lower town, in a heavy snow-storm Dec. 31. The first barrier was gallantly overcome, and M. was leading his men on with cheering words, when a British discharge of artillery killed him and his two aids, and threw his command into confusion, so that the British succeeded in driving the Americans back and

capturing about 400 of their men. The British joined the Americans in paying tribute to his bravery, the gov. and city officials burying him with military honors, while congress passed resolutions of 'grateful remembrance, respect, and high veneration,' and erected a monument to his memory in front of St. Paul's Church, New York. In parliament Burke lauded his virtues. On the rocks over Cape Diamond, where he led his men and was killed, have been inscribed the words: 'Here Major-General Montgomery fell, December 31, 1775.' In 1818, by a special 'act of honor' of the N. Y. legislature, the gov.-gen. of Canada was requested to permit the remains of M. to be removed to New York. This being granted, they were buried in St. Paul's Chapel, near the monument erected by congress to his memory. His widow survived him 52 years, dying 1828.

MONTGOM'ERY, ROBERT: clergyman and verse-maker, who gained notoriety, if not fame: 1807–1855, Dec. 3; b. Bath, England. He graduated B.A. at Oxford 1833, M.A. 1838, and was ordained 1835. In 1836, he became minister of Percy Street Episcopal Chapel, London: he afterward removed to Glasgow, where he preached four years, but returned to London, and resumed office at Percy Street Chapel 1843. M.'s works comprise a large number of volumes in prose and verse, on themes more or less sacred. He is best known by his so-called poems; and these are made notable by Macaulay's scathing ridicule of them, which, however, did not check their sale. Macaulay, in his essay, points out M.'s feebleness and absurdity in thought and expression. *The Omnipresence of the Deity* (1828) reached its 28th ed. 1858. But M.'s works have now become part of the lumber of libraries.

MONTGOM'ERY, WILLIAM READING: 1801, July 10—1871, May 31; b. Monmouth co., N. J. He was educated at West Point, graduating 1825, when he became lieut., and was on garrison duty till 1838. Then he was made capt., serving on the Canadian border 1838–40, in the Florida war 1840–42, and taking part in the occupation of Texas 1845. During the Mexican war he was twice wounded—at Resaca de la Palma, when he was made brevet major, and at Molino del Rey, after having been made commander of his regt. As such he led it at Chapultepec and Mexico. He was then brevetted lieut.col., and commissioned maj. 1852. In 1855 he was removed from the army because of his sympathy with the free-state men in Kan., where he then was stationed. When the civil war began, he at once raised the 1st regt. N. J. volunteers, and was with the army in its defeat at Bull Run. In 1861, May, he was made brig.gen. of vols. and military gov. of Alexandria, Va., as afterward he was of Annapolis, Md. Then he was stationed at Philadelphia till 1863, and at Memphis, Tenn. Owing to failing health he resigned 1864, Apr. 4, and entered business in Philadelphia. He died in Bristol, Penn.

MONTGOM'ERYSHIRE: inland county of n. Wales, between Shropshire on the e. and the Welsh counties, Merioneth and Cardigan, on the w.; greatest length s.e. to n.w. about 40 m., breadth about 35 m.; 495,089 acres or about 773 sq. m., of which about 80,000 acres are under tillage. The surface is almost wholly mountainous, largely bleak elevated moorlands; but toward the English border are several warm, fertile, and well-wooded valleys. Offa's Dyke traverses the s.e. corner. The Severn, the Vyrnwy, and the Dovey are the principal rivers. The county belongs almost entirely to the basin of the Severn. The mineral wealth of M. is not great, but copper, lead, and zinc are procured, and millstones, slates, and limestone are quarried. On the uplands, the soil is poor, and suited principally for mountain pasture; but in the valleys grain and flax are raised. Cattle and sheep and the pure breed of Welsh ponies called 'Merlins' are reared. The Welsh-flannel manufacture is extensive in the county. The cap. is Montgomery (pop. 1,500), from which the county received its name, and which was so called from Roger de Montgomery, Earl of Arundel and Shrewsbury, who, 1093, recaptured the town and castle, which had been wrested during the previous year by the Welsh from the founder, Baldwin, lieut. of the Marches to William the Conqueror and William Rufus. The county sends one member to the house of commons. The county business is carried on at Welshpool and Newtown alternately. There is excellent trade in cattle and horses.—Pop. (1871) 67,623; (1881) 65,798.

MONTH, n. *mŭnth* [AS. *monath*, a month—from *mona*, the moon: L. *mensis;* Gr. *mēn;* Ger. *monat*, the period of the moon's revolution: Goth. *mena;* Icel. *mana;* Ger. *mond;* Gr. *mēnē*, the moon]: the twelfth part of the year; in popular usage, four weeks. MONTH'LY, a. *-lĭ*, happening once a month, or every month; lasting a month; performed in a month: AD. in every month: N. a monthly publication. CALENDAR MONTH, one of the twelve divisions of the year, from 28 to 31 days in each. LUNAR MONTH, one revolution of the moon, occupying from one new moon to another, about 29 days, 12 h., 44 min. MONTH'S MIND (in the old English sense of *month's remembrance*), in the Rom. Cath. Church, a memorial office for the dead, either continued through a month after decease, or repeated at the end of a month. THIS DAY SIX or THREE MONTHS, in *Parliament*, a common motion, when the rejection of a bill is desired, that its next stage shall be taken at a time when the house will not be sitting—should the motion be carried, such a bill cannot be reintroduced in the same session.

MONTH: originally the period of the moon's revolution round the earth. If this is reckoned from the position of the moon among the stars to her return to the same position, the period is called a *sidereal* month, and consists of 27 days, 7 hours, 43 minutes, 11½ seconds; but if from new moon to new moon, it is longer, being 29 days, 12 hours, 44 minutes, 3 seconds; this is called a *synodic* month (see MOON). The latter period forms one of the three natural measures of the lapse of time, and, notwithstanding that its efficiency depends on the state of the atmosphere, it ranks next to the day in importance. There are several other periods used by astronomers to which this name is applied, as the *tropical* or *periodic* month (27 days, 7 hours, 43 minutes, 4·7 seconds), reckoned from the moon's passing the equinox till her return to the same point; the *nodal* month (27 days, 5 hours, 5 minutes, 29 seconds), from ascending node to ascending node; the *anomalistic* month (27 days, 13 hours, 18 minutes, 37 seconds), from perigee to perigee; and the *solar* month, the twelfth part of a solar year, consisting of 30 days, 10 hours, 29 minutes, and 4 seconds. Distinct from all these is the *civil* or *calendar* month, fixed by law for ordinary purposes, and consisting of a fixed number of days—from 28 to 31—according to the particular month. The calendar months are as follows:

	Days.		Days.
1. January,	31	7. July,	31
2. February,	28	8. August,	31
" (leap years),	29	9. September,	30
3. March,	31	10. October,	31
4. April,	30	11. November,	30
5. May,	31	12. December,	31
6. June,	30		

See also the separate months under their own titles. The names by which the months are designated throughout Christendom were given them by the Romans, though Charlemagne in the 9th c., and the French directory in the end of the 18th c., attempted to substitute descriptive epithets.

MONTHOLON, *mōng-to-lōng'*, CHARLES TRISTAN DE, Comte, afterward Marquis DE: 1782–1853, Aug. 21; b. Paris; descended from an ancient French family. At the age of 10 he entered the navy, but exchanged it for the army in 1798. His rise was rapid. He displayed great zeal on behalf of the first consul in the revolution of 18th Brumaire, in the capacity of *chef d'escadron*. He served in a number of campaigns, and was severely wounded at Wagram. Napoleon made him his chamberlain in 1809. He was made a general of brigade in 1814, and appointed to the chief command in the department of Loire. On Napoleon's abdication, M. remained in France, but held aloof from the Bourbons. No sooner had the emperor escaped from Elba and landed at Fréjus, than M. hastened to join him. He was present at Waterloo, and accompanied Napoleon to St. Helena, continuing his devoted attentions to him till he breathed his last, and being named

in his will as one of his trustees, spared no exertion to carry its provisions into effect. Along with Gen. Gourgaud, he published *Mémoires pour servir à l'Histoire de France sous Napoléon, écrits à Ste.-Hélène sous sa dictée* (8 vols. Par. 1823). He afterward published a work entitled *Récito de la Captivité de Ste.-Hélène* (London. 1847). In the proclamation which Louis Napoleon issued on his landing at Boulogne in 1840, M. was named chief of his staff, and on this account he was condemned by the chamber of peers to 20 years' imprisonment; but he was afterward pardoned.

MONTH'S MIND: see OBIT.

MONTI, *mon'te*, VINCENZO: regenerator of modern Italian poetry: 1753, Feb. 19—1828, Oct. 13; b. in the Roman province of Ferrara. He studied in the Univ. of Ferrara. On the termination of his studies, he went to reside in Rome (1778), where M., whose fault through life was a hasty susceptibility, became involved in a bitter squabble with Alfieri, whose fame as the master-tragedian of Italy was then in the ascendant—a fact which may have been unpalatable to M., in consequence of the failure of his own dramatic attempts. The assassination of Basville, the republican envoy of France, afforded to M. a subject for his poem, *La Basvilliana*. His two succeeding poems, the *Musogonia* and the *Feroniade*, contained bitter invectives against France and Bonaparte; but on the appearance of a French army before Rome, M., with the inexcusable inconsistency which characterized his political conduct throughout, hastened to espouse the cause of France, and to invoke the protection of Bonaparte. M. was shortly afterward appointed sec. of the Cisalpine Directory; and 1789 went to France, where he undertook the translation of Voltaire's poetical works. Returning to Italy, he was appointed prof. in the Univ. of Pavia. On the fall of the empire, M. became the eulogist of the Austrian possessors of his country. Through all these political vicissitudes, he pursued with vigor his studies of the classics, and accomplished one of his greatest works, the translation of the *Iliad* into Italian verse. M. died at Milan. The best editions of his works are those of Milan (1825–27, 8 vols.), and *Opere Inedite e Rare* (Milan 1832–3, 5 vols.). M. had warm admiration of Dante, and partook, in some degree, of the quality of the great master. His best works are distinguished by sustained grandeur of imagery and diction, by daring flights of imagination, and by the delicacy, elevation, and fire of the sentiments.

MONTICELLO, *mŏn-tē-sĕl'lō:* for 60 years the home of Pres. Thomas Jefferson; 3 m. w. of Charlottesville, Albermarle co., Va. The mansion, completed about 1774, was one of the most beautiful in the South, and the grounds were laid out in the most attractive manner. The grave of Jefferson, in a family cemetery close by, is marked by an obelisk of granite. Soon after the death of its founder the estate passed out of the possession of his family, and the mansion has fallen into decay.

MONTICLE, n. *mŏn'tĭ-kl*, or MON'TICULE, n. *-kūl* [a dim.—from L. *mons* or *montem*, a mountain or great hill]: a little mount; a hillock. MONTICULATE, a. *mŏn-tĭk'ū-lāt*, having many small projections. MONTON, n. *mŏn'-tŏn*, among *miners*, a heap of ore; a mass under the process of amalgamation.

MONTILLA, *mōn-tēl'yâ:* town of Spain, in the modern province of Cordova, 20 m. s.s.e. of the city of Cordova; on a hillside rising from the s. bank of a tributary of the Xenil. Manufactures of coarse linen and earthenware are carried on, and oil-mills are in operation. A famous pale, dry, light wine is grown in the vicinity; and from the name M. is named the sherry known as Amontillado. M. was the birthplace of Gonzalo de Cordova, the 'Great Captain.' Pop. (1877) 13,207.

MONTJOIE ST. DENIS, *mōng-żhwâ' săng dĕh-nē':* war-cry of the ancient kings of France, said to be as ancient as the days of Clovis, and from which the king-of-arms, Montjoie, who had exclusive jurisdiction in French heraldry, derived his title.

MONTLUCON, *mōng-lü-sōng':* town of central France, dept. of Allier, picturesquely situated on a hill on the right bank of the Cher, 40 m. w.s.w. of Moulins. It has extensive manufactures of iron, steel, and plate-glass, besides lime-kilns, saw-mills, and woolen-mills. Its railway connections are abundant, and it has trade in corn, wine, and fruits. M., as a great industrial centre, has sometimes been called the French Manchester. At a distance of 10 m. are the wells of Néris-les-Bains, famous in the time of the Romans—of whom many traces are left—and still frequented by invalids.—Pop. (1881) 24,767.

MONTMARTRE: see PARIS.

MONTMORENCY, *mōng-mo-rŏng-sē*, ANNE, first Duc DE, Marshal and Constable of France: b. 1493, Mar.—1567, Nov. 12; b. Chantilly; of one of the oldest and greatest of the noble families of France, named from Montmorency, place about 9 m. n.n.w. of Paris. He received, it is said, the name of *Anne* from his godmother, Anne of Brittany. He distinguished himself by gallantry and military skill in the wars between Francis I. and Emperor Charles V., and was taken prisoner with his sovereign in the battle of Pavia, fought against his advice. He afterward became the leader of the French govt. showing great ability in finance and diplomacy, and was made constable 1538; but his rough manners made him an object of dislike to many; and the suspicions of the king having been aroused against him, he was suddenly banished from court 1541, and passed ten years on his estates, till the accession of Henry II., when he came again to the head of affairs. In 1557, he commanded the French army which suffered the terrible defeat of St. Quentin, in which he was taken prisoner. During the minority of Charles IX., M., with the Duke of Guise and the Marshal St. André, composed the

famous triumvirate which resisted Catharine de' Medici. In 1562 and 67, he commanded the royal army against the Huguenots, and in both wars gained victories, but received a fatal wound at St. Denis, and died at Paris on the following day.

MONTMORENCY', HENRI II., second Duc DE: 1595, Apr. 30—1632, Oct. 30; b. Chantilly; grandson of the famous Constable de M. His godfather was the great *Henri Quatre*, who always called him his 'son.' When he was 17 years of age, Louis XIII. made him admiral, and he defeated the Huguenots in Languedoc, and took the Isle of Ré from those of Rochelle. He afterward gained other victories over them, and 1630 received the chief command of the French troops in Piedmont, where he defeated the Spaniards, for which he received a marshal's baton. Unhappily for himself he ventured to oppose Richelieu, who had always been his enemy, and espousing the cause of Gaston, Duke of Orleans, led the rebel army; for this he was declared guilty of high treason, and Marshal Schomberg being sent against him, defeated him at Castelnaudary, and took him prisoner. M., though almost mortally wounded, was carried to Toulouse, sentenced to death by the parliament, and notwithstanding his expressions of penitence, and the most powerful intercessions made for him—e. g., by King Charles I. of England, the pope, the Venetian Republic, and the Duke of Savoy—was beheaded. M. was distinguished for amiability and courtesy of manners, as well as for valor.

MONTMORENCY' (or MONTMORENCI), FALLS OF: on the M. river in Canada, near its mouth, about 8 m. from Quebec, near the little village of M. The river, 50 ft. wide, falls 250 ft.

MONTORO, *mōn-tō'rō:* a town of s. Italy, province of Avellino, partly on the slope and partly around the base of a hill, 12 m. n. of Salerno. It forms the central point of several villages, and has large markets and some linen and cloth manufactures.—Pop. 4,721.

MONTO'RO: pleasant town of Spain, in the modern province of Cordova, on a rocky ridge around which winds the Guadalquiver, here crossed by a fine bridge dating from the 16th c.; 26 m. e.n.e of Cordova. It contains one of the best hospitals in Andalusia. Scarcely any drinkable water can be obtained within the town. The heights in the vicinity are clothed with olive plantations, and oil is largely exported from this quarter. Woolens and earthenware are manufactured. Pop. (1877) 13,293.

MONTPELIER, *mōnt-pēl'yėr*, or *mŏnt-pē'lĭ-ėr:* town, cap. Washington co., and of the state of Vt.; in the central part of the state, on the Winooski river, 40 m. from Burlington, about 200 m. n.w. of Boston. It is in a beautiful valley on the Central Vermont, and the M. and Wells River railroads, and has considerable trade with adja-

cent agricultural and dairy regions. It has six churches, good schools, is the seat of the Vt. Methodist Sem. and Female College, has the state library, a public reading-room, and two religious and three weekly secular papers and daily newspapers are issued during the legislative sessions. There are two banks, two fire insurance companies, one life insurance company, and four hotels. The state house, of granite in the Grecian-Doric architecture with dome 124 ft. high, is an admirable structure. The town is a summer resort. Pop. (1870) 3,023; (1880) 3,219.

MONTPELLIER, *mōng-pā-lyā′* (Lat. *Mons pessulanus* or *puellarum*); city of France, dept. of Hérault; 43° 36′ n. lat., and 3° 50′ e. long; about 480 m. s. of Paris, 7 m. from the Mediterranean. Seen from a distance, M. has an imposing appearance, from the number of its towers, steeples, and cupolas; but though its suburbs and the newer parts of the city are clean and well built, the interior of the old town disappoints expectation, being remarkable chiefly for its crooked, dark, narrow, and dirty streets, though it has many good houses. The public walks, especially the Place de Peyrou, one of the finest squares in France (575 ft. long, 410 ft. wide), and some other elevated points, afford superb views, embracing the Mediterranean, the Alps, the Cevennes, and the Pyrenees. The most noteworthy buildings are the cathedral, the theatre, the exchange, the Hall of Justice, the prefecture, the observatory, and the university. The university, founded 1196, is composed of three faculties—medicine, founded 12th c. by Arabian physicians, and still ranking among the best in Europe—exact sciences—and physical sciences. M. has a botanical garden, the oldest in Europe; a public library of 50,000 vols., and a pharmaceutical school; admirable museums, natural history and fine art collections, etc. The industrial products of M. are pigments and other chemical preparations, brandy, liqueurs, perfumes, soap, corks, sugar, cotton, woolen, and fine leather goods; and the trade, which is very important, includes, besides these articles, wine, seeds, olive oil, and fruits. Railways to Marseille, Cette, and other ports, besides various canals, facilitate commercial and social intercourse, and few cities of the empire hold out greater attractions in regard to intellectual culture. Its geographical position has led to its being selected as a place of residence for consumptive patients; but the extreme clearness, and even sharpness of the air in the more elevated parts of the town, the occurrence of the icy wind known as the *Mistral*, and the sudden accession of overpowering heats, seem materially to counteract some of its long reputed advantages. —Pop. (1881) town alone 52,673.

MONTRE, n. *mŏngtr* [F.]: mounted diapason: an organ stop whose pipes form part of the case or are placed away from the sound-board—one of the foundation stops is generally used for this purpose.

MONTREAL, *mŏnt-rē-awl′* [F. *mōng-trā-âl*]: largest city of the Dominion of Canada, in the province of Quebec; lat. 45° 31′ n.; long. 73° 35′ w.; on the e. side of the island of Montreal (q.v.), at the confluence of the Ottawa with the St. Lawrence; at the head of ocean navigation, 160 m. above Quebec, 986 m. from the Atlantic; 200 m. below Lake Ontario, 400 m. from New York, 2,750 m. from Liverpool. M. has a noble situation, being built on a succession of terraces on the side of a hill. Its eastern suburb, called Hochelaga, was originally the site of an Indian village of the same name, discovered 1535, Sep., by Jacques Cartier; and it is from his admiring exclamation at the view from the neighboring hill that M. (corrupted from Mont Royal) derives its name. The westernmost permanent settlement which the French obtained in Canada, it was under them merely an outpost of Quebec, and continued to be such under British rule till 1832, when it became a separate port. Since then, the rapidity of its progress has been astonishing. By the deepening of the shallower parts of the river above Quebec, M. is now accessible to vessels of over 3,000 tons' burden, and drawing 19 to 22 ft. Its harbor, lined with wharves for a mile and a quarter, at which 125 ships can lie at one time, is, from its inland position (90 m. above the influence of the tides), perfectly safe. Situated at the head of the ocean navigation of the St. Lawrence, M. has naturally become the depot for the exports and imports of all the Canadas. At the same time, the obstruction to vessels sailing further up the river, caused by the rapids, has been surmounted by magnificent canals. The Lachine Canal avoids the Lachine Rapids (see CHINE, LA: ST. LOUIS, LAKE), and simplifies direct communication with Lake Ontario, which is accessible from Ottawa by the Rideau river and canal. The Welland Canal, passing around Niagara Falls, connects Lakes Ontario and Erie; so that M. is at the foot of an improved chain of inland waters extending to Lake Superior. The canals connecting M. with Lake Ontario have locks of 200 ft. by 45, with 9 ft. of water on the sills; the locks of the Welland Canal are rather smaller. By means of the Ottawa, M. is in contact with the vast lumber-country adjoining that river and its tributaries. While navigation is open, an extensive daily traffic is carried on, by steamers and sailing-vessels of every description, with Lake Ontario and the Ottawa district, as well as with the lower St. Lawrence; and the ships of the Montreal Ocean Steamship Company, by aid of a subsidy from the Canadian govt., keep up weekly communication with Liverpool, and the harbor is constantly crowded with vessels from other foreign ports. After the navigation of the St. Lawrence is closed, the ocean steamers find a harbor at Portland, Me., connected with M. by a railway of 292 m. This line belongs to the Grand Trunk railway company, and crosses the St. Lawrence at M. by the celebrated tubular Victoria Bridge, the length of which, including its two abutments and

24 piers, is more than a mile and three-quarters. By the lines of the same company, M. has railway communication with upper Canada, the western states, and lower Canada, while the Intercolonial railway gives communication with Halifax and St. John. Several other lines afford direct communication with all the important cities and towns in New England and N. Y. The position, therefore, of M., as a centre of commerce, is scarcely surpassed, and its rapid advance in consequence has placed it, within the last few years, among leading commercial cities of the American continent. The development of Manitoba and the Canadian northwest, and the progress of the Canada Pacific railway, tend to increase its commercial importance. In the three years 1879–81, the total exports varied from $21,000,000 to $31,000,000; imports $27,000,000 to $44,000,000. The harbor is open on an average about eight months, from the latter half of Apr. to the beginning of Dec. The manufactures of M. are considerable, the principal being boots and shoes, tobacco, cotton, locomotives, passenger and freight cars, saws and axes, steam-engines, type, India-rubber shoes, paper, furniture, woolens, cordage, and flour.

The public buildings of M. are numerous and handsome. Among them are Bonsecours Market, Courthouse, City Hall, and Bank of M. It is, however, for the size and magnificence of its churches that M. is most remarkable. The huge Rom. Cath. Cathedral of St. Peter is after the plan of St. Peter's at Rome; it is 300 ft. long by 225 wide at the transepts, and is crowned by five domes, one of them 250 ft. high. Though smaller than this, the Church of Notre Dame, hitherto serving as cathedral, is also a very large building, and it is certainly one of the finest churches on the continent of America. Built in the Gothic style of the 13th c., it can accommodate between 10,000 and 12,000 people. It has six towers, of which the three on the main front are 220 ft. in height; and its chief window is 64 ft. high and 32 broad. There are several other Rom. Cath. churches belonging to the order of St. Sulpice, to whose members chiefly M. owes its foundation, and who still hold the seigniory of the island on which the city is built. Adjoining the cathedral is the Seminary of St. Sulpice, to which a large addition has been built within the last few years at a cost of $40,000. The city contains some of the largest conventual establishments in the world. The general wealth, indeed, of the Rom. Cath. Church in M. has grown enormous in consequence of the increased value of the property given to it during the early settlements of the French. The Church of England has recently erected, at an expense of more than $100,000, a new cathedral. St. Andrew's Church (Presb.) is a chaste Gothic structure; and the Methodists have a handsome church in florid Gothic. Besides the Rom. Cath. college and St. Mary's College of the Jesuits, there are theological colleges of the Church of England, the Presb., Meth., and Congl. churches. M. possesses an important

university under the name M'Gill College. Founded by a bequest of the Hon. James M'Gill 1811, erected into a univ. by royal charter 1821, reorganized by amended charter 1852, it has now, besides its principal, the distinguished naturalist, Sir John William Dawson, LL.D., a staff of 29 professors, and more than 300 students. Laval Univ., for which a new building is being erected, and the medical schools of the universities of Bishop's College and Victoria, are noted features of the higher educational system of the Dominion. M. is supplied with water by works which cost about $600,000: the water is brought from the St. Lawrence above the Lachine Rapids, by an aqueduct five m. long, to a pond, from which it is forced up, by power derived from part of its surplus waters, into reservoirs capable of containing 20 millions of gallons, 200 ft. above the river. Along the side of the 'Mountain,' there is a line of mansions, which command the view that astonished Jacques Cartier, and which may compare with the suburban mansions of the wealthiest cities in Europe or America.—M. was the first city on the American continent to burn its garbage and night-soil. Pop. (1779) 7,000; (1840) about 27,000; (1850) 57,000; (1861) 90,323; (1871) 107,225; (1881) 140,863. Of the total pop., 103,600 were Rom. Catholics; and 79,000 were of French, and 30,000 of Irish, origin. Pop. (1887, by local census) 186,257.

MONTREAL' ISLAND: large and fertile island on which the city of Montreal is built; 30 m. long, 10 m. greatest breadth; 197 sq. m. Formed by the separation of the two channels by which the Ottawa issues into the St. Lawrence, its surface, except at Mount Royal, is diversified only by gentle undulations.

MONTREUX, *mōng-tréh':* village on the n. shore of the Lake of Geneva, 14 m. s.e. of Lausanne. Its beautiful situation and mild climate and high rępute for healthfulness attract many visitors, and the place abounds with *pensions*. There are several other villages (among them, Clarens) in the commune of M.—Pop. of commune (1881) abt. 8,000.

MONTROSE, *mŏn-trōz′:* royal and parliamentary borough and seaport on the n.e. coast of Scotland, county of Forfar; at the mouth of the river South Esk, about 80 m. n.e. of Edinburgh, 40 m. s. of Aberdeen. It stands on a level peninsula between M. Basin (a tidal loch, 7 m. in circumference, but almost dry at low water) and the mouth of the river South Esk. A fine suspension-bridge, 432 ft. long and 26 ft. broad—erected 1828–9 at a cost of nearly £23,000—connects the town with Rossie Island, which is again connected with the mainland by a small drawbridge. The Royal Lunatic Asylum, opened 1868, accommodates about 400 patients. Between the town and the shore are the 'Links' or downs, among the finest in Scotland for golfing or cricketing. The harbor, one of the best on the e. coast, affords excellent accommodation to vessels of large tonnage, having 18 ft. of water on the bar at low-water of spring-tides. Two light-houses stand in line on the n. bank of the river, about 400 yards apart; while a tower, named the Scurdyness Light-house, erected by the board of trade 1870—exhibiting a clear white light, visible at nearly 20 m. distance—stands at the mouth of the river. Flax-spinning is the chief manufacture: three factories employing more than 2,000 hands, at a weekly cost of about £1,500. A large saw-mill employs nearly 300 men and boys. There are good schools, an academy, and a public library of about 20,000 vols. In 1880 entered and cleared the port 740 vessels, 94,000 tons; value of imports and exports £293,795. Imports—coal, lime, slate, iron, flax, and manures; exports—manufactured goods, salmon, herring, dressed wood, and agricultural produce. Pop. (1871) 14,548; (1881) 14,994.

MONTROSE′, JAMES GRAHAM, first Marquis of and fifth Earl of: 1612–1650, May 21; b. at Old Montrose, near Montrose town; of a family that can be traced back as far as 1128.—Its first notable member was Sir JOHN GRÆME of Dundaff, who fell at the battle of Falkirk, 1298, July 22. Early in the 15th c., Sir William Graham married for his second wife a daughter of King Robert III. ROBERT, eldest son of this marriage, was ancestor of the Grahams of Claverhouse. The third Lord Graham, created Earl of Montrose by James IV., fell at Flodden; his eldest son at Pinkie. The next in succession became viceroy of Scotland after James VI. had ascended the throne of England. His eldest son, John, who succeeded to the earldom 1616, married Lady Margaret Ruthven, eldest daughter of William, first Earl of Gowrie, and sister of the unfortunate nobleman who gives name to the *Gowrie Conspiracy.* The issue of this union was five daughters and one son, James Graham, the 'great Marquis,' subject of this sketch.

M.'s mother died 1618, his father 1626. In the following year the boy was sent to the Univ. of St. Andrews by his guardian and brother-in-law, Archibald, Lord Napier, son of the famous inventor of logarithms. During the two or three sessions of his attendance at college,

M. showed a genuine predilection for literature, which the stormy character of his after-life never quite destroyed. In his 17th year he married Magdalene Carnegie, daughter of Lord Carnegie of Kinnaird, Earl of Southesk. On attaining his majority, he left Scotland, to travel on the continent, visited the academies of France and Italy, and perfected himself in the accomplishments of a gentleman and a soldier. On his return, he was introduced to King Charles I., but, owing, it is said, to the machinations of the Marquis of Hamilton, was coldly received by that monarch, and thereafter, soon as he reached Scotland, joined the ranks of the king's opponents—at that period the majority of Scotchmen. M. came back in the very year (1637) when the tumults broke out in Edinburgh on the attempt to introduce the Prayer-book. Whether his conduct at this moment was the result of chagrin, or whether he was carried away by the prevailing enthusiasm, or by the persuasions of craftier persons than himself, is difficult to say. At any rate, the youthful nobleman soon became to appearance one of the most zealous of the Covenanting lords. He was one of the four noblemen selected to compose the 'Table' of the nobility, which, with the other Tables of the gentry, of the boroughs, and of the ministers, drew up the famous National Covenant (see COVENANTS), sworn to by all ranks at Edinburgh in the spring of 1638. In 1639 he made three military expeditions to Aberdeenshire to overawe the royalists; and he twice took the city of Aberdeen. On the first occasion (Mar. 29), he compelled the inhabitants to subscribe the Covenant, but did no injury to the city. His 'too great' humanity is even lamented by Baillie. On the second (May 25), he imposed on the city a fine of 10,000 merks; but though his soldiers pillaged the place, he honorably resisted the importunities of the zealots among the Presb. clergy, who wished to expose it to the horrors of conflagration. Baillie again complains of his 'too great lenity in sparing the enemy's houses.' The arrival at Aberdeen, by sea, of the Earl of Aboyne—Charles's lieutenant of the north—with some reinforcements, induced M. to retreat: he was pursued by the earl and the Gordon Highlanders; and in a battle June 15 at Meagra Hill, near Stonehaven, M. obtained a complete victory. Four days later, he was again master of Aberdeen, after a fierce struggle at the passage of the Dee. The citizens were stricken with alarm, expecting some bloody punishment for their well-known leanings toward prelacy, but M. agreeably disappointed their fears. At a subsequent period, he was upbraided by the Committee of Estates for not having burned the town on this occasion. News of 'the pacification of Berwick' now arrived in Aberdeen, and terminated the struggle in the north. Charles, who was noted for his fascinating power in conversation, invited several of the Covenanting nobles to meet him at Berwick, where he was holding his court, and to consult with him about Scottish affairs. Among those who went was M., and

from that interview the Scotch Presbyterians dated what they regarded as his apostasy. Be that as it may, his political position was certainly different after his return. In the general assembly which met 1639, Aug. 13, under the presidency of the Earl of Traquair, as royal commissioner, he showed symptoms of disaffection toward the Covenant, and was the object of popular obloquy. One night he is said to have found affixed upon his chamber-door a paper bearing these words, *Invictus armis, verbis vincitur*. The dissolution of the parliament 1640, June, led to an open rupture between the king and the Covenanters, and both parties prepared to decide their quarrel by force of arms. The king assembled at York an army of 21,000 horse and foot; the Covenanters one of 26,000, which, under the command of Leslie, crossed the Tweed 1640, Aug. 21, M. being the first man that forded the stream. The successes of the Scots soon forced Charles to summon a new parliament for settlement of national grievances. Meanwhile M., with several other nobles, had entered into a secret engagement at Cumbernauld, for the purpose of frustrating what they regarded as the factious designs of the extreme Presb. leaders. His conduct in England, too, had been suspicious. It was accidentally discovered that he had been secretly communicating with the king; and when the parliament assembled (1640, Nov.), he was cited to appear before a committee. The affair of the *Cumbernauld Bond*, discovered by the ingenuity of Argyle, was brought up; but M. defended his conduct and that of his colleagues; and nothing came of it, though some fiery spirits among the clergy, says Guthrie, 'pressed that their lives might go for it.' In the following June, M. and some others were accused of plotting against Argyle, and were confined in Edinburgh Castle, where they remained till the beginning of 1642, when they were set at liberty in return for the concessions which Charles had made his Scottish subjects. Although they had been frequently examined, nothing definite had been proved against them. The accusation that M. had offered to the king to assassinate Argyle is not historically substantiated, and is intrinsically improbable. During the next two or three years he kept aloof, outwardly, from public affairs, but he had finally broken with the Covenanters, and had privately ranged himself on the side of the king. Indeed, M. had no natural inclination toward Puritanism, and cared little for the ecclesiastical questions involved in the quarrel. As he had opposed the outrageous intermeddling of the crown with the liberties of Scotchmen in their Presb. worship, so now he opposed the harsh, almost insolent control which the Presb. clergy claimed over the laity. The civil war in England had now broken out, and was being carried on with dubious success. Charles and his advisers resolved to crush the Presb. leaders in Scotland, who were abetting the efforts of the English parliamentarians. In the spring of 1644, M., now raised to the rank of marquis, left Oxford, where he had been residing

with his sovereign, and proceeded to Scotland to raise the royalists in the north. The battle of Marston Moor for a moment paralyzed him, but his resolution speedily returned. He threw himself into the Highlands, and, after skulking about the hills in disguise, met at Blair-Athol some Irish auxiliaries and a body of Highlanders under Allaster Maccoll Keitache Macdonald, better known as *Colkitto*, who had forced their way thither from the Western Isles in hopes of joining him. M. instantly placed himself at their head, and the clans quickly rallied round his standard. Marching s., he fell suddenly (Sep. 1) on the Covenanting army commanded by Lord Elcho, at Tippermuir, near Perth, and gained a complete victory: not a single royalist was slain. The same night, M. entered Perth, where he remained three days, levying a fine of 9,000 merks on the inhabitants. He then set out for the n., defeated a force of Covenanters under Lord Burleigh at Aberdeen (Sep. 13), and took possession of the city, which was abandoned for four days to all the horrors of war. The approach of Argyle, at the head of 4,000 men, compelled M., whose forces were far inferior in numbers and discipline, to retreat. He plunged into the wilds of Badenoch, recrossed the Grampians, and suddenly appeared in Angus, where he wasted the estates of more than one Covenanting nobleman. Argyle, baffled in his attempts to capture or crush M., returned to Edinburgh, and threw up his commission. His opponent, receiving large accessions from the Highland clans, planned a winter campaign, marched s.w. into the country of the Campbells, devastated it frightfully, drove Argyle himself from his castle at Inverary, and then wheeled north, intending to attack Inverness, where the Covenanters were posted in force under the Earl of Seaforth. The 'Estates' at Edinburgh were greatly alarmed, and, raising a fresh army, placed it under the command of General Baillie, natural son of Sir William Baillie of Lamington. After consulting with Argyle, it was arranged that he should proceed by way of Perth, and take M. in front, while Argyle should rally his great array of vassals, and attack him in the rear. The royalist leader was in the great glen of Albin—the basin of the Caledonian Canal—on his way to Inverness, when he heard that Argyle was following him. He instantly turned on his pursuer, fell upon him unexpectedly at Inverlochy 1645, Feb. 2, and utterly routed his forces: 1,500 of the Campbells were slain, and only four of M.'s men. He then resumed his march northward, but did not venture to assault Inverness—his wild mountaineers being admirably fitted for rapid irregular warfare, but not for the slow work of beleaguerment. Directing his course to the e., he passed —with fire and sword—through Elgin and Banff into Aberdeenshire, which suffered a similar fate, captured and pillaged the city of Dundee (Apr. 3), and escaped safely into the Grampians. May 4, he attacked and routed Hurry at Auldearn, near Nairn; and soon again issued from his wilds, and inflicted a still more disas-

trous defeat on Baillie himself, at Alford, in Aberdeenshire (July 2). There was now nothing to prevent his march s., and about the end of the month he set out with a force of 5,000 to 6,000 men. He was followed by Baillie, who picked up reinforcements on his way, and Aug. 15 again risked a battle at Kilsyth, but was defeated with frightful loss—6,000 of the Covenanters being slain. The cause of Charles was for the moment triumphant; M. was virtually master of the country. The king formally appointed him lieut.gov. of Scotland and commander-in-chief of the royal forces. All the principal cities in the west hastened to proclaim their fidelity, and laid the blame of the recent troubles on the unfortunate Presb. clergy. But affairs soon took a very different turn. Great numbers of the Highlanders returned home —we might even say, deserted—burdened with multifarious plunder; and the Earl of Aboyne withdrew with all his cavalry. M.'s position, in a district teeming with enemies, was growing critical, and Sep. 4 he broke camp at Bothwell, and marched for the eastern counties, where Charles had informed him that the Earls of Traquair, Home, and Roxburgh were ready to join him. In this he was disappointed, and Sep. 13 he was surprised at Philiphaugh, near Selkirk, by David Leslie, who fell upon the relics of M.'s army and his raw levies with 6,000 cavalry—the flower of the Scottish forces then serving in England—who had been hurriedly dispatched home on the news of M.'s startling successes. Leslie completely annihilated his opponent. 'On Philiphaugh,' says Sir W. Scott, 'M. lost the fruit of six splendid victories.' Escaping from the field of battle, he made his way to Athol, and again endeavored, but in vain, to rouse the Highlands; and at last Charles, whose cause now began to decline in the civil war, was induced to order him to withdraw from the kingdom. 1646, Sep. 3, he sailed for Norway, whence he proceeded to Paris. Here he endeavored, but in vain, to induce Henrietta Maria to bestir herself on behalf of her husband. The queen coldly received all his suggestions, and at last M., in despair, betook himself to Germany, in hope of service under the emperor, but soon returned to Holland, and entered into communications with the Prince of Wales, afterward Charles II. It was here that news of the beheading of Charles I. reached him: M. fainted on receipt of the dreadful intelligence, and gave way to the most passionate regrets. Charles II. now re-invested him with the dignity of lieut.gov. of Scotland, and M. undertook a fresh invasion on behalf of the exiled monarch. 1650, March, he arrived at the Orkneys with a small force, and after the lapse of three weeks proceeded to Caithness; but neither the gentlemen nor the commons would rise at his call. He forced his way as far s. as the borders of Ross-shire, where his dispirited troops were attacked and cut to pieces at a place called Corbiesdale, near the pass of Invercarron, by a powerful body of cavalry under Col. Strachan. M. fled into the wilds

of Assynt, where he was nearly starved to death, when he fell into the hands of M'Leod of Assynt, who delivered him up to Gen. Leslie, by whom he was brought to Edinburgh. Condemned to death as a traitor to the Covenant which he had signed, he was hanged. His demeanor in his last moments was noble and dignified. He declared that he was still a Covenanter; that he did not care for bishops, and had never intended to advance their interests.

MONTSERRAT, *mŏnt-sĕr-răt′*: one of the Lesser Antilles, belonging to Britain, 43 m. n.w. of Guadeloupe, and about the same distance from Antigua and St. Kitts. It is about 11 m. in length, 7 in breadth; 32 English sq. m. About two-thirds of the surface is mountainous and barren; the rest is well cultivated. The chief products are sugar, limes, rum, and molasses; but cotton, arrow-root, and tamarinds also are exported. The island forms a portion of the government of the Leeward Isles, and is directly ruled by a president, aided by a council and house of assembly. The chief town is Plymouth, on the s. coast. In 1880 the tonnage of vessels which entered and cleared its port was 13,484; total value of imports £25,364; of exports £29,121. Pop. (1881) 10,083.

MONTSERRAT, *mont-sĕr-rât′* (Lat. *Mons Serratus*, from having jagged ridges *like the teeth of a saw*): mountain of Catalonia, in n.e. Spain, about 30 m. from Barcelona; height 3,919 ft. 'Its outline,' says Ford (*Handbook for Spain*, I. 419), 'is most fantastic, consisting of cones, pyramids, buttresses, nine-pins, sugar-loaves, which are here jumbled by nature in a sportive mood.' The pious Catalonians aver that it was thus riven and shattered at the Crucifixion. Every rift and gorge is filled with box-trees, ivy, and other evergreens. From the topmost height, the eye wanders over all Catalonia, and from the sea the ridge looks like an immense wall with seven pyramidal peaks. The mountain, however, owes its fame not to its extraordinary appearance, but to the Benedictine Abbey built upon it, at an elevation of 1,200 ft., and to the 13 hermitages formerly perched like eagles' nests on almost inaccessible pinnacles. In 1811 the French, under Suchet, plundered the abbey, burned the library, shot the hermits, and hung the monks (who had given shelter to their emigrant brethren at the Revolution). The place suffered still more 1827, when it became the stronghold of the Carlist insurrection.

MONUMENT, n. *mŏn′ū-mĕnt* [F. *monument*—from L. *monŭmen′tum*, a memorial—from *monĕō*, I admonish or remind: It. *monumento*]: anything durable made or erected to perpetuate the remembrance of any person or thing; a structure, as a pillar or mausoleum, erected as a memorial; a tomb; any enduring evidence or example, as a *monument* of folly or wisdom. MON′UMENT′AL, a. *-mĕnt′ăl* [F.]: of or relating to a tomb or monument; memorial; preserving memory. MON′UMENT′ALLY, ad. *-lĭ*.—SYN. of 'monument': cenotaph; memorial; remem-

brance.—See CAIRN: CROMLECH: SEPULCHRAL MOUND: PILLAR: OBELISK: PYRAMID: ARCH, TRIUMPHAL: BRASSES, SEPULCHRAL: TOMB: TOPE: MAUSOLEUM: ETC.

MONZA, *mōn'zâ* (anc. *Modœtia*): chief town of a dist. in the province of Milan; on the river Lambro, 10 m. n.n.e. of Milan, with which it is connected by railway. It is essentially a town of Lombard growth, and under the Lombard sovereigns was cap. of their kingdom. It owes much of its early importance, and its chief public edifices, to Theodolinda, the great queen of the Lombard dynasty. In the middle ages, M. was conspicuous for the wealth of its numerous citizens and nobles, and the extent of its cloth-trade. It has undergone 32 sieges. The cathedral, founded in the 6th c. by Theodolinda, contains many interesting memorials of this great queen. The famous Iron Crown (q.v.) and regalia of Lombardy, employed at the coronation of the German emperors as kings of Italy, were removed from Lombardy by the Austrians 1859, on the cession of that province to France. The town has a good gymnasium, a theatre, two hospitals, and a philharmonic institution. Its manufactures of cottons, hats, and preserved meats are increasing. M. is surrounded by an exuberantly fertile district, which yields abundance of grain, fruits, wine, and silk, and possesses great beauty of scenery and climate. Pop. of M. (1881) 17,077.

MOOD, n. *môd* [Dut. *moed;* Ger. *muth;* Icel. *modr*, spirit, courage]: disposition of mind; temper of mind; a temporary state of the mind; disposition. MOODY, a. *môd'ĭ*, peevish; fretful; out of humor; sad; gloomy. MOOD'ILY, ad. *-lĭ*. MOOD'INESS, n. *-nĕs*, sullenness; peevishness.—SYN. of 'moody': pensive; capricious; varying; mournful; dejected; melancholy.

MOOD, n. *môd* [F. *mode*, fashion, way, mood in grammar—from L. *modus*, a measure, quantity (see MODE)]: in *gram.*, a certain form of inflection indicating the *mode* or *manner*, as regards action, in which the meaning of the verb is presented to the learner, as indicative *mood*, imperative *mood;* in *logic*, the form of a syllogism, as determined by the quantity and quality of the three propositions by which it is formed; style of music.

MOODIR, or MUDIR, n. *mô'dēr:* Turkish name for the gov. of a city or district.

MOODY, *mō'dĭ*, DWIGHT LYMAN: evangelist: b. 1837, Feb. 5, Northfield, Mass. When only four years of age he lost his father by death. He worked on a farm in summer and attended the country school in winter until he was 17 years old, when he became clerk in a shoe-store owned by an uncle, in Boston. He attended the Mount Vernon Congl. Church and Sunday-school, and became a member of that church 1855. Under many discouragements he worked zealously in the church and Sunday-school. He went 1856 to Chicago, obtained a clerkship, and established a mission Sunday-school, which soon had 1,000 members. He relinquished his clerkship and devoted himself to study and religious work. He served the Christian Commission during the civil war, was then employed as city missionary by the Young Men's Christian Assoc. of Chicago, and subsequently became pres. of that organization. To meet the needs of his numerous converts, most of whom were gathered from classes outside of ordinary religious influences, an independent church was formed of which M., though not ordained, was pastor. In the great fire 1871, the church, with a house which had been presented to M., was destroyed, but a new church accommodating 2,500 persons has taken its place. At a convention of the Young Men's Christian Assoc. 1871, M. met Ira D. Sankey, the famous singer, who joined him in his Chicago enterprise and has since frequently labored with him in evangelistic service. In 1873, June, M. and Sankey commenced a series of meetings in the great cities of England, Scotland, and Ireland, which were attended with remarkable results. They returned 1875 and held meetings in many of the large cities of the United States, at which great numbers of people were converted. They visited Great Britain again 1883, returned the following year, and have continued their labors in the same line with great success. Each summer there is held at Northfield, under the general direction of M., a school for Bible study for college students of this and foreign lands. This term lasts about two weeks, and is followed by a conference, or convocation, of Christian workers from all parts of the world. M. is a close student of the Bible, exceedingly earnest and pungent in his preaching, yet noticeably broad and charitable in spirit. He is deeply versed in the Scriptures, has unfailing tact and knowledge of men, and uses language utterly simple and unambitious, but of singular force, fitness, and impressiveness. Among M.'s writings are *The Second Coming of Christ*, *Secret Power*, *The Way to God*, and *Arrows and Anecdotes*. Several vols. of his sermons have been published.

NORTH'FIELD SEMINARY.—After making (1875) Northfield his permanent home, Mr. M. became impressed with the need of the young people in the vicinity for better educational facilities and a stimulus to more earnest Christian living. In connection with friends he formed the plan of a school for girls which should supply a good English education to those who, from want of means or opportunity to attend, were shut out of existing institu-

tions, and which should fit its pupils for mission work in large cities or in foreign lands. The English course is designed to be equal to that of a good academy, the Latin to fit for admission to college; and the distinctive aim of the seminary is to develop Christian character. Either course of study covers four years, and one year is required as preparation therefor. A certain amount of domestic work is required of each pupil, partly to reduce the expense of maintaining the school and partly to develop character and fit for usefulness. The expense for board and tuition is $100 per year for each pupil, and the deficit resulting from this low charge is made up by friends of the institution, the parties owning the royalty on the Gospel Hymn Books being liberal benefactors. A large farm connected with the seminary furnishes part of the food supply. The seminary was opened 1879, Nov. 3, with 25 pupils. In 1889 a class of 16 was graduated, and there were 339 names on the roll for 1889-90. Each year of its existence applicants have been refused for lack of room. The expenses of the seminary 1888 were $42,976.01; receipts from pupils $27,581.41; the total endowment $42,000; and the valuation of the property 1889, $218,217.05.

MOUNT HERMON SCHOOL FOR BOYS.—Though it was not opened as early, the plans for this school were laid before the Northfield Seminary was organized. While in Chicago, Mr. M. planned a school in which boys might obtain a good education, with thorough training in the Scriptures. The great fire of 1871 delayed the execution of these plans, and the school was finally established at Mount Hermon. This is in the town of Gill, Mass., just s. of the line of Northfield and w. of the Connecticut river. It is about four m. from the seminary. The first purchase of land was made 1879, and by subsequent additions the grounds now comprise about 400 acres. The first boy came to the school 1881, May 4, and the articles of incorporation were signed 1882, Mar. 29. In 1883 12 boys came from Manchester, Eng., as pupils; and new buildings have been frequently required by the increasing number of applicants. There is a preparatory department in which pupils who have had few advantages are fitted for a higher grade, an English, a classical, and a biblical course. The latter has occupied but two years, but it is proposed to extend it to four years, to correspond with the other courses. Industrial education is given not only in the line of various trades, but also on the farm and in the house. Considerable attention is given to vocal and instrumental music. The Bible is made the principal text-book, and the chief aim of the school is to prepare men for religious work and Christian usefulness. The expense to the pupils is $100 per year for each. Large donations to the school are made by the owners of the copyright of Gospel Hymns, and by other friends. In 1889 there were representatives of 16 nationalities connected with the school, and a class of 12 members was graduated. The expenses for 1888 were $65,808.87; receipts from pupils $20,720.95; endowments

$41,119.62; and the valuation of the property 1889, $245,-811.82.

MOO'DY, SAMUEL: 1676, Jan. 4—1747, Nov. 13; b. Newbury, Mass. He graduated from Harvard College 1697, studied theology, and became pastor 1700 of Congl. Chh. at York, Me. He attended, as chaplain, 1745, the expedition of Sir William Pepperell to Cape Breton. Later he was prominent in establishing a Congl. church, Providence, R. I. He was noted for benevolence, zeal, shrewd wit, and originality of character. Some of his quaint sayings are still in circulation. Among his published works were *The Doleful State of the Damned* and *Judas Hung Up in Chains*. He died York, Me.

MOOERS, BENJAMIN: 1758, Apr. 1—1838, Feb. 20; b. Haverhill, Mass. He was ensign in the Revolution, promoted lieut. and adjt., served till the close of the war, and settled in the wilderness 1783, near the present location of Plattsburg, N. Y. He was member of the state legislature eight years, held various county offices, was appointed maj.gen. of militia, and was commander at the battle of Plattsburg, 1814, Sep. 11. His *Order Book*, kept during the Revolution, was published 1876. He died at Plattsburg.

MOOLTAN': see MULTÂN.

MOON, n. *môn* [Skr. *mâs*, moon; *mâsa*, month—from *mâ*, to measure (see MONTH)]: the luminary of the night which revolves round the earth; the satellite of the earth (see below); a month: V. to be affected by the moon; to be sentimental. MOON'ING, imp. being sentimental; under the influence of the moon. MOONED, a. *môn'ĕd*, in *OE.*, resembling the moon; having the character of the moon. MOONET, n. *môn'ĕt*, a little moon. MOONISH, a. *môn'ĭsh*, variable as the moon; flighty. MOONY, a. *môn'ĭ*, pertaining to the moon. MOON'LESS, a. *-lĕs*, without moonlight. MOON'BEAM, n. a ray of light from the moon. MOON-CALF, a mass of fleshy matter generated in the uterus; a dolt; a stupid fellow. MOON-FISH, a fish so called from the shape of its tail-fin. MOON'-LIGHT, a. illuminated by the moon; occurring during or by moonlight: N. the light of the moon. MOON'LIT, a. *-lĭt*, illumined by the moon. MOON'SHINE, n. the light of the moon; mere show without substance or reality. MOON'SHINER, n. in some mountainous regions of the southern states, a colloquial term for makers of illicit whiskey, and smugglers of whiskey that has been legitimately manufactured. MOON'STONE, n. stone, named also *adularia*, of white color, or of yellowish or greenish white—so called from the beautiful play of light which it exhibits (see FELSPAR). MOON-STRUCK, affected by the influence of the moon—according to popular belief; silly; lunatic. BEYOND THE MOON, out of reach; out of depth; extravagantly. HARVEST-MOON: see under HARVEST.

MOON, THE: the satellite of the earth, revolving round the earth from w. to e. in a period of one *Month* (q.v.), and thus accompanying the earth in its motion round the

sun. As the M., to an observer on the earth, advances more than 13° to the e. daily, while the corresponding advance of the sun is barely 1°, her progress among the stars is much more notable than that of the sun. This rapid angular motion, the continual and regular variation of her illuminated surface, and her large apparent size (nearly equal to that of the sun), have rendered the M. an object of general interest; while her importance as the principal nocturnal substitute for the sun, and her special value to navigators and geographers, in the determination of longitudes (see LATITUDE AND LONGITUDE), have rendered the *lunar theory* the object of thorough investigation.

Phases of the Moon.—The first peculiarity about the M., that strikes a casual observer, is the constant and regular change of her illuminated surface from a thin crescent to a circle, and *vice versa*, and a corresponding change in the time of her appearance above the horizon. These changes depend on the position of the M. relative to the earth and the sun (fig. 1), for it is only the half of the M.

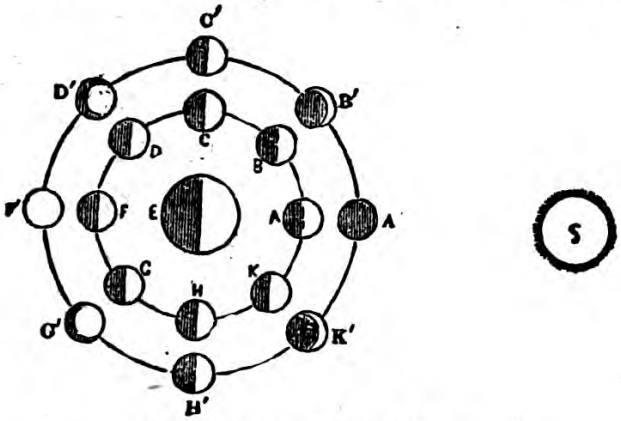


Fig. 1.—Phases of the Moon:
A, B, C, D, F, G, H, K, appearances presented by the moon to an observer situated at the pole of her orbit; A', B', C', D', F', G', H', K', 'phases' of the moon at the end of each eighth part of her course; S, position of sun; E, position of earth.

facing the sun that is illuminated by his rays, and the whole of this illuminated portion can be seen from the earth only when the sun, earth, and M. are in a straight line, S, A, E, F (the *line of syzygies*), and the earth is between the sun and M. When the M. is in the line of syzygies, but between the earth and the sun, no part of her illuminated disk can be seen from the earth, A'. In the former case, the M. is said to be *full*, and in the latter, *new*. A few hours after 'new moon,' the M. appears a little *east* of the sun as a thin crescent, with the horns pointing toward the *east;* and as she increases her angular distance from the sun at the rate of about 12° daily, the crescent of light becomes broader, till, after the lapse of a little more than seven days, at which time she is 90° in advance of the sun, she presents the appearance of a semicircle of light, C'. The M. is then said to have completed her *first quarter*. Continuing her course, she

becomes 'Gibbous' (q.v.); and, at the 15th or 16th day from new moon, attains a position 180° in advance of the sun, and now presents the appearance known as *full moon*, E′. From this point she begins to approach the sun, again appearing gibbous, and, after a third period of more than seven days, reaches a point 90° west of him, and enters her *last quarter*, H′. Here, again, she appears as a semicircle of light, the illuminated portion being that which was not illuminated at the end of the first quarter. The M., now rapidly approaching the sun, resumes the crescent form, but this time with the horns pointing *westward*, the crescent becoming thinner and

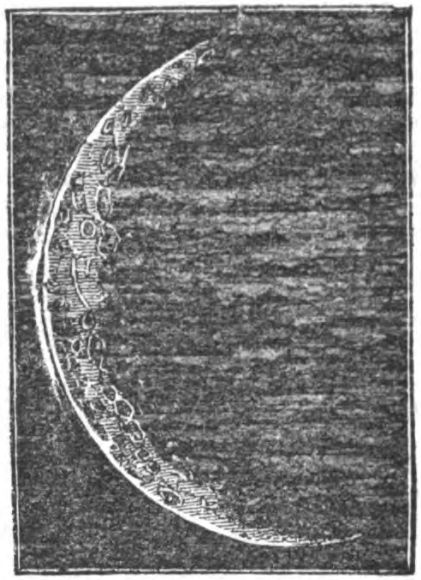


Fig. 2.—Crescent Moon.

thinner, till the M. reaches the position of new moon, and disappears. From 'full moon' to 'new moon,' the M. is said to be *waning;* and from 'new moon' to 'full moon,' *waxing.* The earth as seen from the M. presents similar phases, and has, consequently, at the time of new moon, the appearance of a round illuminated disk, and at full moon is invisible. This explains the peculiar phenomenon, occasionally observed when the moon is near the sun (either before or after new moon), of the part of the M.'s face which is unilluminated by the sun appearing faintly visible, owing to the reflection upon it of strong earth-light. This phenomenon is designated by the Scottish peasantry as 'the new mune wi' the auld mune in her airms.' At new moon, the M., of course, comes above the horizon about the same time as the sun, and sets with him, but rises each day about 50 minutes later than on the day previous, and at the end of the first quarter rises at midday and sets at midnight, continuing to lag behind the sun. When at the full, she rises about sunset and sets about sunrise, and at the commencement of her last quarter she rises at midnight and sets at midday.

Distance and Magnitude.—From repeated observations of the M.'s horizontal *Parallax* (q.v.), and of the occultations by her of the fixed stars, her mean distance * from the earth has been estimated at 237,600 m.; and as her angular diameter averages 31′ 26″, her actual diameter is 2,153 m., or a little less than $\frac{3}{11}$ths of the earth's diameter. Her volume is therefore about $\frac{1}{49}$th of that of the earth, and, her density being only ·577 (that of the earth being taken as unity), her mass is only $\frac{1}{88}$th of the earth's mass; consequently, the force of gravity at her surface is so much less than it is at the surface of the earth, that a body which weighs 1,000 lbs. here would at the M. weigh only 163 lbs.

Orbit.—The M. revolves round the earth in an elliptic orbit, with the earth in the focus; the eccentricity of the ellipse being equal to ·05491 of half its major axis, or more than $3\frac{1}{4}$ times that of the earth's orbit. The plane of her orbit does not coincide with the ecliptic, but is inclined to it at an angle of 5° 8′ 47·9″, and intersects it in two opposite points, called the *Nodes* (q.v.). The point at which the M. is nearest to the earth is called her *perigee*, and that at which she is furthest from it her *apogee*, and the line joining these two points is called the *line of apsides*. Were the M.'s orbit a true ellipse, which, owing to various irregularities known as *perturbations*, it is not, the *lunar theory* would be exceedingly simple; but these perturbations, which, in the case of the planets, produce a sensible variation in their orbit only after many revolutions, cause, in the case of the M., a distinct and well-marked deviation from her previous course in a single revolution. The retrogradation of her nodes along the ecliptic causes a continual change in the plane of her orbit, so that if, during one revolution round the earth, she occults certain stars, at the next revolution she will pass to one side of them, and will remove further and further from them in each successive revolution. A little consideration will show that, by this continual change of her orbit, the M. will, in course of time, pass over, or occult, every star within 5° 24′ 30″ of the ecliptic. The motion of the nodes is so rapid that they perform a complete circuit of the orbit in 6793·39 mean solar days, or 18·6 years. Another important change in the M.'s orbit is the revolution of the line of apsides, by which the perigee and apogee are continually changing their position relative to the earth and sun. This revolution is more than twice as rapid as that of the nodes, being performed in 3232·57 mean solar days, or 8·85 solar years. For the nature and origin of this motion, common to all the heavenly bodies, see Perturbations (q.v.). Its effect upon the M. is to produce a variation in her distance from the earth, independent of that produced by her elliptic motion

* When the M. is at the *perigee*, she is within 225,000 m., and, when at the *apogee*, more than 251,000 m. from the earth; her angular diameter as measured from the earth consequently varies from 28′ 45″ to 33′ 30″, and for a particular day is greatest when she is on the meridian, as in this case she is nearer to the spectator by about 4,000 m. than when she is on the horizon.

Eclipses.—As the M. in her course passes the sun at the commencement of every (synodic) month, and by the middle of the month has placed the earth between herself and the sun, it is evident that, if she moved in the plane of the ecliptic, there would be either a *total* or an *annular eclipse of the sun* at the commencement, and a *total eclipse of the moon* in the middle of every month. The inclination of her orbit, allowing her to pass the sun 5° 9′ to the n. or s. of his track, prevents such a frequent occurrence of eclipses. If the M., when in conjunction, is at either of her nodal points, and at the same time near her perigee, a total eclipse of the sun takes place; but if near her apogee, the eclipse is only annular, for at that time her apparent diameter is less than the sun's. If, also, at her conjunction, her latitude n. or s. is less than the sum of her semi-diameter and of that of the sun, a *partial* eclipse takes place, and is greater the nearer the M. is to her node. These partial eclipses are seldom seen from all parts of the earth's illuminated surface, but are confined to a portion of it, greater or less according to the extent of the eclipse. Lunar eclipses, which occur when the M. is in opposition (i.e., at full moon), are seen equally from all parts of the earth's surface turned toward her. The conical shadow of the earth, projected into space on the side opposite to the sun, is in length equal to about $3\frac{3}{5}$ times the M.'s distance, and a section of it at the M.'s distance is 1° 23′ in diameter. If, then, the M., which is never more than 33½′ in diameter, happens to be at or near her node, a *total* eclipse will take place, and in no case can it be *annular*, as is sometimes the case with those of the sun. Even during total eclipses, the M. is seldom quite invisible, but generally shines with a faint copper-colored light. See ECLIPSE.

Rotation.—The M., like all other satellites, as far as known, revolves round her own axis in precisely the same time that she revolves round the earth; she thus presents always the same face to us; consequently, though her comparative proximity has enabled us to become better acquainted with her surface than with that of any other heavenly body, our knowledge is confined to one-half of her surface, with the slight exception of the knowledge obtained from her *Libration* (q.v. under LIBRATE). To the inhabitants of the side of the M. next the earth—if the M. could have inhabitants, which is very improbable—the earth would appear as a luminary about 2° in diameter, immovably fixed in their sky, or at least changing its position only to the extent due to the M.'s libration. The earth would thus seem to them to have a disk about 15 times larger than that of the sun.

Physical Features.—The surface of the M., as seen from the earth, presents a most irregular grouping of light and shade (fig. 3). The dark portions were named by the earlier astronomers as seas, lakes, etc., and still retain these names, though there is strong evidence against the supposition that the M., or at least that portion of it

presented to us, contains any water. The brighter parts of the M. are mountainous, as is proved by their casting shadows when the sun's rays fall upon them obliquely, also by the ragged appearance presented by the interior illuminated border of the M., shown in fig. 2, an appearance which can be satisfactorily accounted for only on the supposition that the surface of the M. is not level, in which case the higher portions will be illuminated some time before the light reaches the level parts; and it is observed that, as the illumination proceeds, bright spots start up in advance of it, and, when the M. is on the wane, these same spots continue to shine some time after the surrounding surface is immersed in gloom. The mountains occur either singly, when they are generally of a circular form, and are called *craters;* or in groups, mostly annular, and forming a sort of wall in-

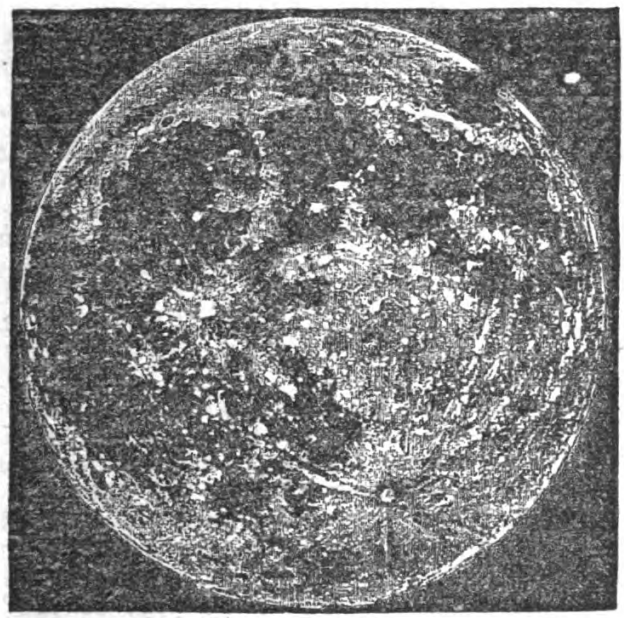


Fig. 3.—The Moon.
Copied, by permission, from De la Rue's Photograph.

closing a deep depression or plain, in which are one or more conical mountains. Some of the craters are 8 or 10 m. in diameter, and some of the walled plains measure more than 100 m. across. The principal mountain range is the Apennines, which crosses the surface from n.e. to s.w., and attains, according to some authorities, an altitude of about 20,000 ft., though Sir John Herschel gives about 2 miles as the probable limit of elevation above the M.'s surface. The heights are estimated from a micrometric measurement of the length of their shadows, a method not, in this case, susceptible of much accuracy. The M. everywhere presents traces of volcanic agency, but no active volcanoes have yet been discovered, nor is there any sign of recent volcanic action. Seen through the telescope, she presents a bleak, des-

olate appearance, without indications of animal or vegetable existence. She appears devoid of an atmosphere; or, if one exists, it must be of exceeding rarity.

The influence of the M. in causing *Tides* (q.v.) has long been known, and there is some reason for supposing that she produces a similar effect on the atmosphere, combining with other causes in the generation of winds. Those winds which prevail about the time of new and full moon, and at the vernal and autumnal equinoxes, are particularly ascribed to her influence. On the supposition that the M. might affect organic nature, also, experiments were instituted by Mead, Hoffmann, and others; but no certain results were attained. The periodicity which has often been noticed in certain diseases, especially in insanity (hence called *lunacy*), was long supposed to have some connection with lunar influence, and this opinion is held to some extent at the present day. The chemical effects of the M.'s rays are, so far as it is at present known, feeble, though in particular instances they exhibit an *actinism* as powerful as that of the sun. Decomposition of animal matter takes place more rapidly in moonshine than in darkness, and the M.'s rays, when concentrated, have a sensible effect on the thermometer.

The best map of the M. is the large and accurate one of MM. Baer and Mädler, presenting a minutely detailed picture of her visible surface; the map is 3 ft. in diameter. See, further, PERTURBATIONS: LIBRATION, under LIBRATE: NODES: EVECTION: METONIC CYCLE: TABLES: LUNAR: ETC.

Superstitions regarding the Moon.—The M. was anciently an object of worship, and even in the 17th c. she was supposed, by the common people of England, to exercise great influence over human affairs. The times for killing animals for food, gathering herbs, cutting down wood for fuel, sowing seeds of various kinds, all were regulated by the 'age' of the M., and these set periods were considered to be a necessary part of practical knowledge, and ignorance or neglect of them to be infallibly productive of loss. There were similarly defined periods for taking particular medicines and attempting the cure of particular diseases. Many such superstitions prevailed till a recent period in the Highlands of Scotland, favorable or unfavorable consequences from any occurrence being predicted according to the age of the M. at the time it happened. Throughout Scotland, the waning M. was considered to have an evil influence, and full or new moon to be the most auspicious season for commencing any enterprise. The same opinion was held in Scandinavia and Germany, and the history of all nations teems with similar superstitions. See ECLIPSE.

In the Edda, we read that 'Mundilföri had two children—a son, Mâni (moon), and a daughter, Sôl (sun);' and in German the M. is masculine and the sun feminine to this day. It was the same in A.S.; though modern English has in this matter followed the classic myth-

ology, in which Phœbus and Sol are gods, and Selene, Luna, and Diana are goddesses; Grimm (*Deutsche Mythologie*, p. 666) quotes an old invocation to the 'New Moon, gracious lord' (Neuer Mond, holder herr), for increase of wealth; and down to recent times the German people were fond of speaking of 'frau sonne' and 'herr mond' ('lady sun' and 'lord moon'). The same inversion (as it appears to us) of gender is found among the Lithuanians and Arabians, and even the ancient Mexican Meztle (moon) was masculine. Among the Slaves, according to Grimm, the moon is masculine, a star feminine, and the sun neuter. In Hindu mythology, also, the M.—Chandra or Soma—is a male deity, represented by one myth as the son of the patriarch Atri, who procreated him from his eyes; but by another, as arising from the milk-sea when it was churned by the gods for the attainment of the beverage of immortality. His wives are the 27 daughters of the patriarch Daksha, known as the nymphs of the lunar constellations. By one of them, Rohin'î, he had a son Budha (not to be confounded with Buddha), regent of the planet Mercury, who begot, from Ilâ, a son, Purûravas, who became ancestor of a royal family, hence called the lunar dynasty.—The M. is generally represented as wearing white garments, with a mace in one hand, and riding in a chariot drawn by ten horses or antelopes. The animal sacred to him is the hare (the Hindus believing that an outline like that of a hare is visible on the M.); and the plants under his special patronage are a certain variety of the lotus, which flowers when the M. rises, and the Soma plant, or *Asclepias acida*. Thus, in the Vishn'u-Purân'a, the M. is described as the receptacle of the beverage of immortality, with which it is replenished by the sun, for the sustenance of the gods, the Manes (q.v.), men, animals, and vegetables.

MOON, MOUNTAINS OF THE: supposed range of lofty summits in central Africa, which, from ancient times, have given rise to curious geographical hypotheses. Ptolemy, and, until lately, many of the ablest geographers, supposed that a very high chain of mountains crossed the continent of Africa from e. to w.; and they have continued to shift these mountains from one latitude to another, ranging from 10° n. to 10° s., but still within nearly the same meridional bounds. Dr. Beke, from his own researches and a minute study of the geography of e. Africa, propounded the theory that the so-called Mountains of the M. run from n. to s. parallel to the coast of Zanzibar, instead of from e. to w.; forming a continuation of the great Abyssinian table-land, and embracing the snow-capped mountains of Kenia and Kilimandjaro, which have an altitude of 20,000 ft. The mass of mountains discovered by Captain Speke 1858, round the head of Lake Tanganyika, was considered by him, both from its crescent form and its position, to be part of the Mountains of the M. of Ptolemy; but mountains of this height (6,000 to 10,000 ft.) could never be snow-clad so near the equator.

MOONJAH, *môn'ja*, or MUNJAH, *mûn'ja*, or MOONYAH, *môn'ya* (*Saccharum Munja*): grass of the same genus with the sugar-cane, native of India, the leaves of which afford a useful fibre, of which ropes are made. The M. grows in vast abundance in the neighborhood of the Ganges, Indus, and other rivers. Its fibre is very tough and strong. No proper trial seems yet to have been made of the qualities of the M. fibre, more carefully prepared; but considering the facility with which it could be obtained in any desirable quantity, it deserves attention.—Very similar to the M. is the SARA or SHUR of Bengal (*Saccharum Sara*), another species of the same genus, the leaves of which are employed in the same way.

MOONSHEE, n. *môn'shē*, or MUNSHEE, n. *mŭn'shē* [Ar. *munshi*, a writer]: a Mohammedan professor or teacher of languages—so called in the E. Indies; a Mussulman interpreter or scribe.

MOOR, n. *môr* [Icel. *mor*, peat, turf, moor; *myri*, a marsh: Dut. *moer*, a bleak swamp or marsh: Sw. *myra*, a moorland]: an extensive tract of waste land, covered with patches of heath, and having a poor light soil, sometimes marshy and peaty. MOOR'ISH, a. *-ĭsh*, marshy; fenny. MOOR'Y, a. *-i*, sterile; marshy. MOOR-BUZZARD, a moor-bird. MOOR-FOWL, or RED GROUSE (see MOOR-FOWL, below). MOOR-GAME, grouse (q.v.), ptarmigan (q.v.), and other birds found on moors. MOOR-HEN, or WATER-HEN (see GALLINULE). MOOR'LAND, n. heath-covered land. MOOR'STONE, n. granite found on the surface of a moor. THE MOORS, great tracts of moorland and hills where game is preserved for sporting.

MOOR, n. *môr* [L. *Maurus*, an inhabitant of the eastern part of Africa—from Gr. *mauros*, moorish, black: Bohem. *maur*, coal-dust: F. *Maure* or *More*, a Moor]: a native of n. Africa—called by the ancient Romans *Mauritānia*, from the color of the people, the word meaning literally 'country of the dark-complexioned people'; one of the people from Africa, of Arabic, descent or followers of Mohammed, the Arabian prophet, who conquered Spain in the 8th c. (see MOORS, below). MOOR'ISH, a. *-ĭsh*, pert. to the people called Moors.

MOOR, v. *môr* [Sp. *amarrar;* F. *amarrer*, to fasten, to moor: Dut. *marren*, to tie, to moor a ship: comp. Gael. *amar*, a chain or cable: also L. *mora*, delay]: to confine or make fast a ship, by means of cables or chains and anchors, in a particular station; to be confined to a particular station, as a ship. MOOR'ING, imp.: N. the act of securing a ship to one position, or alongside a landing-place. Also, a fastening to retain a ship in a given position: this may be either by her own anchors, or (which is the more common meaning of the term) by fixed and permanent buoy, which, on its part, is anchored to the bottom. A *chain-mooring* is where a strong chain is stretched for some distance on the bottom, being securely anchored or otherwise made fast at each end, and perhaps in intermediate places. Numerous buoys are then floated from

it, and it becomes the mooring-ground for many vessels. Chain-moorings are frequent in all large harbors where comparatively small vessels require to ride. MOORED, pp. *môrd*, made fast in a station. MOORAGE, n. *môr'āj*, a place for mooring. MOOR'INGS, n. plu. *-ĭngz*, the anchors or buoys laid in a river or harbor in order that a ship may confine itself to one position; said of a ship lying with more than one anchor out.

MOORE, *mōr*, ALFRED: 1755, May 21—1810, Oct. 15; b. Brunswick co., N. C. He was educated at Boston, obtained slight knowledge of the law, was offered a commission in the royal army, but joined the patriots, was capt. 1775 in a N. C. regiment, afterward organized a company of volunteers that rendered excellent service. His property was destroyed by the British. He was elected 1790 atty.gen. of the state, applied himself to legal studies, and became eminent in his profession. He was appointed judge 1798, and the following year became associate justice of the U. S. supreme court, which office he resigned 1805 on account of ill-health. He died at Belfont, N. C.

MOORE, BENJAMIN, D.D.: 1748, Oct. 5—1816, Feb. 27; b. Newtown, Long Island. He graduated from Kings (present Columbia) College 1768, prepared for the ministry, went to England, and 1744 was ordained deacon and priest by the bp. of London. Returning to this country, he was appointed assistant at Trinity Church, New York, and 1800 became rector of Trinity parish. The following year he was elected bp. of the Prot. Episc. Church of N. Y. He was pres. of Columbia College 1801–11, performing also all the duties of his church offices. In 1811 he was disabled by paralysis. He published a few sermons, and a pamphlet in defense of the Episcopal services. A volume of sermons was published after his death, which occurred at Greenwich, N. Y.—His son, CLEMENT CLARKE M., LL.D. (1779, July 15—1863, July 10; b. New York), author of *'Twas the Night before Christmas*, graduated from Columbia College 1798, held various professorships of language and literature nearly 30 years in the Prot. Episc. Theol. Seminary, N. Y., of which he was a liberal benefactor, and was made prof. emeritus 1850. He published a *Hebrew and Greek Lexicon*, a collection of poems, and *George Castriot*. He died at Newport, R. I.

MOORE, GEORGE HENRY, LL.D.: 1823, Apr. 20; b. Concord, N. H. He removed in early life to New York and assisted his father as librarian of the N. Y. Historical Soc., meanwhile studying at the university, from which he graduated 1843. He retained his position as assistant until 1849, when he succeeded his father as librarian. He became 1872 supt. of the Lenox Library, which position he still occupies, and he has served also as trustee of that institution. To his efforts the N. Y. Historical Soc. largely owes its high position. His published works include *The Treason of Charles Lee*, *Employment of Negroes in the Revolutionary Army*, *Notes on the History of Slavery in*

Massachusetts, *History of the Jurisprudence of New York*, and *Washington as an Angler*.—His brother, FRANK M., (b. Concord, N. H., 1828, Dec. 17), removed to New York, and in 1869–72, was asst. sec. of legation at Paris during the Franco-Prussian war. He returned to New York and engaged in journalism and authorship. Among works which he edited are *Songs and Ballads of the American Revolution*, *Cyclopedia of American Eloquence*, *Lyrics of Loyalty*, and *Songs and Ballads of the Southern People*. His chief work was the *Rebellion Record* (12 vols. 1861–71), a valuable chronicle of the civil war.

MOORE, JESSE HAILE: 1817, Apr. 22—1883, July 11; b. St. Clair co., Ill. He graduated 1842 from McKendree College, Lebanon, Ill.; taught school two years; was successively principal of Georgetown Seminary; pastor of Meth. Episc. Chh. at Shelbyville; principal of Paris, Ky., Seminary; pres. Quincy, Ill., College; and pastor of a church at Decatur, Ill. He resigned the latter position to enter the army, raised a regt. of volunteers which he commanded in various battles, was made brevet brig. gen. 1865, resumed his clerical duties, was member of congress 1869–73, and U. S. consul at Callao, Peru, 1881, until his death.

MOORE, Sir JOHN: English general: 1761, Nov. 13—1809, Jan. 16; b. Glasgow; eldest son of Dr. John M. He entered the army as ensign when only 15 years old, and served with distinction in Corsica, as col.; in the W. Indies, as brig. gen.; in Irelandd uring the rebellion of 1798, and in the expedition to Holland, as a gen. of staff. He was in Egypt with the army under Abercromby, and obtained the order of the Bath for services in command of the reserve. In 1802, M. served in Sicily and Sweden. In 1808, he was sent with a corps of 10,000 men to strengthen the English army in the Peninsula. He arrived in Mondego Bay, Aug. 19, and was subsequently in chief command. In Oct. he received instructions to co-operate with the forces of Spain in the expulsion of the French from the Peninsula. He moved his army from Lisbon, with the intention of advancing by Valladolid, to unite with the Spanish gen. Romana, and threaten the communications between Madrid and France. But the apathy of the Spaniards, and the successes of the French in various parts of the Peninsula, soon placed him in a critical position. Yet he had determined to make a bold advance from Salamanca to attack Soult, thus drawing Napoleon from his advance into Andalusia, and bringing the attack upon himself, while the army in Andalusia might have time to reorganize for contest with the French. When the news reached him that Madrid had fallen, and that Napoleon was marching at the head of 70,000 men, to crush his force of only 25,000, M. began his retreat which has become as famous as though it had been a great victory. In Dec., he began the disastrous march from Astorga to Coruña, nearly 250 m., through a desolate and mountainous country, made almost impassable by snow and

rain, and harassed by the enemy. The soldiers suffered intolerable hardships, and arrived at Coruña in great distress. It was impossible to embark without fighting, and Soult was in readiness to attack as soon as the troops should begin to embark. The battle was mainly one of infantry, for the cavalry, after destroying their horses, had gone on board, and the bulk of the artillery, for which the ground was not adapted, had also been withdrawn. 1809, Jan. 16, the French came on in four strong columns, and desperate battle ensued. While animating the 42d regt. in a brilliant charge in an early stage of the action, M. was struck by a cannon-ball on the left shoulder, and died in the moment of victory. The French were defeated with the loss of 2,000 men; and the funeral obsequies of the deceased soldier were performed with melancholy solemnity just before the embarkation of his troops. The British army in this expedition lost their magazines and 6,000 soldiers. A monument was erected to M.'s memory in St. Paul's Cathedral.—M. was certainly one of the greatest military figures of his times. He re-animated the British army with the spirit of valor and of discipline. His name, even to our day, starts a thrill of courage and devotedness in the hearts of British military officers commissioned to uphold the standard of their country. His memory is a national treasure.—There is an adverse military view of his retreat: see Sir Bartle Frere, *Life of the Rt. Hon. J. H. Frere.* But for the view usually held and best substantiated, see M.'s *Life*, by his brother (1833); see also Napier's *Peninsular War*, especially the splendid description, Book iv.

MOORE, JOHN, M.D.: Scottish physician and miscellaneous writer: 1730–1802, Feb. 20; b. Stirling; son of the Rev. Charles M., Episcopal clergyman. Educated at the Univ. of Glasgow, he studied medicine and surgery in that city, and in Holland, London, and Paris; and began practice in Glasgow. After five years on the continent, he settled in London 1778. In 1779, he published *A View of Society and Manners in France, Switzerland, and Germany* (Lond. 2 vols. 8vo); *A View of Society and Manners in Italy* (2 vols. 8vo 1781); *Medical Sketches*, in two parts (1786); and 1789, *Zeluco*, a novel (2 vols. 8vo)—the principal, or the most popular of his works. Among his other works are—*A Journal during a Residence in France*, 1792 (2 vols. Lond.); *A View of the Causes and Progress of the French Revolution* (2 vols. Lond. 1795). He also edited a collected ed. of Smollett's works, with a life of the author. M. was a writer of much sagacity and decided literary skill. His novel *Zeluco* is a psychological analysis of a base and passionate reprobate. It greatly impressed the public, and was so reflected in some of Byron's poetry as to give rise to a popular opinion that in *Childe Harold* as a sort of Zeluco, Byron intended some portraiture of himself. Like many other popular opinions this mistake had probably some small basis of fact. M. died at Richmond in Surrey.

MOORE, THOMAS: one of the two most popular poets of his time: 1779, May 28—1852, Feb. 26; b. Dublin; son of a small tradesman, who through the influence of Lord Moira afterward became a barrack-master in the army. At an early age, M. was placed at a school in which Sheridan had been a pupil. In 1793, he was sent to the Dublin Univ., entering Trinity College as one of the earliest Rom. Cath. students after the prohibition of that sect was removed: there he took the degree B.A. Before entering the univ., he had written verses for a Dublin magazine; and while there, he translated the *Odes* of Anacreon, in the hope of obtaining a classical premium, in which, however, he was disappointed. In Dublin, he acquired Italian and French, and being fond of music, he learned to play on the piano—a serviceable accomplishment in his future career.

In 1798, with his translation of Anacreon in his pocket, he came to London to study law, and entered himself in the Middle Temple. In 1800, he published his translations, dedicated to George IV., then Prince of Wales. Already he had become the pet of London drawing-rooms. He had a gay temperament, a most winning manner, a wonderful gift of verse-making of a kind suited to society scenes; and he sang his own verses with thrilling effect on princesses and peeresses, and on those who shared the emotions of such noble breasts. In 1802, he produced his *Poetical Works of the Late Thomas Little*—a volume of sweet but licentious verse, which was largely blamed, and very widely read. In 1803, through the influence of Lord Moira, he was appointed to a govt. post at Bermuda. He arrived there 1804, Jan.; but he sadly felt his banishment from the fashionable society of London, committed his duties into the hands of a deputy, and travelled in America previous to his return to England. His transatlantic experience seems to have cured him of the democratic ideas which he had imbibed in Dublin. On his return to England, he published *Odes and Epistles*, for which he was sharply taken to task in the *Edinburgh Review*. A duel between himself and Jeffrey was the consequence—over which Byron made much mirth—and which resulted absurdly but delightfully in the combatants becoming excellent friends. In 1807, he engaged with Mr. Power to produce the *Irish Melodies*, and on this work he was occupied at intervals till 1834. In 1811, he married, and shortly afterward went to reside in Derbyshire, where 1813 he produced *The Twopenny Post-bag*, full of brilliant fancy—in which the tropes not only glittered but stung.

As, till this time he had produced nothing but fugitive pieces, he became anxious to emulate his brethren, who wrote long poems, and published in quartos. He fixed on an oriental subject, and the Messrs. Longman agreed to purchase the poem for 3,000 guineas. In 1817, the long-expected *Lalla Rookh* appeared—brilliant as a firefly, and the whole English world applauded. It was melodious verse with elaborate accuracy of oriental costume,

coloring, and scenery—the whole outward seeming of the voluptuous east; but artificial and melodramatic, and utterly lacking in realization of the oriental character. After its publication, he went to Paris, where he wrote *The Fudge Family*, which appeared 1818. At this time, he learned that his deputy in Bermuda had misconducted himself, and that he had become liable for a large sum, which was afterward, however, considerably reduced. Lord Lansdowne paid the claim, and M. repaid his lordship afterward. In 1819, M. went to Paris with Lord John Russell, and extended his tour to Italy, and saw Lord Byron at Venice. He returned to Paris, where he brought his family, and fixed his residence till 1822. Here he wrote *The Loves of the Angels*, which appeared 1823, and *The Epicurean*, prose romance, published 1827. On his return to England, he fixed his abode at Sloperton Cottage, near Bowood, and issued the *Memoirs of Captain Rock*, 1824, and *Life of Sheridan*, 1825. Byron had handed over to M., for his own especial benefit, a manuscript autobiography, on the condition that it should not see the light till after its author's death. Byron died 1824, and as, at the request of his lordship's relatives, the manuscript was destroyed, M. then entered into arrangements with the publisher Murray to produce a life of the deceased poet: published (2 vols.) 1830. Next year he published *Life of Lord Edward Fitzgerald*. His last important work, though left uncomplete, was a *History of Ireland*, for *Lardner's Cyclopædia*. A pension of £300 per annum was conferred on him 1835. In 1841, he brought out an edition of his entire poetical works. For the three years preceding his death, he was afflicted with softening of the brain. His friend, Lord John Russell, published his *Memoirs, Journal, and Correspondence*, 8 vols. (1852–56).

Despite his popularity during his life-time, M. has not taken a permanent place in the rank of great poets. His muse is a spangled dancing-girl—light, airy, graceful, but nothing more. His most ambitious work, *The Loves of the Angels*, is far beneath the Miltonic, or even the Byronic, standard. *Lalla Rookh* is brilliant, but fatiguing. He is most successful in polished satire and the lighter sentiments; and his reputation will ultimately rest on *The Twopenny Post-bag* and the *Irish Melodies*.—His character had its charming side; indeed, it was in large part charming, with its amiability, geniality, and real though sometimes latent manliness and sincerity.

MOORFOWL, *môr'fowl*, or RED GROUSE; or, in books of natural history, RED PTARMIGAN or BROWN PTARMIGAN (*Lagopus Scoticus*): bird peculiar to the British Islands, and affording more amusement to sportsmen than any other feathered game in Britain. It is the bird generally known in Britain by the name *Grouse*, though improperly so called, as it is not a true species of Grouse, but rather of Ptarmigan (q.v.). The toes are completely feathered, as well as the legs; the bill is very short, and its base much concealed by feathers. The length of the M. is

about 16 inches, of which about four inches belong to the tail. The tail is nearly square. The wings are short. The plumage is of deep chestnut-brown color, marked on the back and wing-coverts with black spots, and on the under-parts with undulating black lines; the four middle tail-feathers also are marked with transverse black lines. Above the eyes is a naked space (the cere),

Moorfowl, or Red Grouse (*Lagopus Scoticus*).

of a bright scarlet color. The M. is plentiful in the moors of Scotland and the Hebrides, Wales, n. England, and Ireland. It feeds on the tender tops of heath, crowberries, bilberries, etc.; and frequently visits the fields of oats and other grain in the vicinity of the moors, particularly when the *stooks* remain long in the field in late and rainy harvests. The M. is not polygamous, and pairs in spring, when the plumage—particularly of the male—assumes a lighter and redder tint. The female lays 8 to 15 eggs. The nest is on the ground, often under shelter of a tuft of heath. The young run about very soon after they are hatched. 'Grouse' remain in *coveys* (broods) from the time they are hatched till late in the autumn, after which they 'pack' or assemble in large bodies.—A cream-colored variety of M. is sometimes found in n. England.—The M. is easily domesticated, and breeds readily in an aviary, if supplied with heath for food.

MOOR'ISH AR'CHITECTURE: see ARABIAN ARCHITECTURE.

MOORS, *môrz:* people who form the great majority of the population of Barbary. Their appearance indicates their origin, which is a mixture of the Mauri (from whom they derive their name), Numidians, Phœnicians, Romans, and Arabs, who have successively held possession of the country. In consequence, they vary considerably in appearance and character in different parts of Barbary, but all show more or less strongly symptoms of considerable infusion of Arabian blood. They are a well-formed race, with fine oriental features, and a mild and melancholy expression of countenance. They are more friendly and

sociable than the Bedouins and Berbers, who inhabit the deserts and mountains; but are inferior to them in mental ability, besides being voluptuous and cruel. They constitute, generally speaking, the tradesmen, artisans, merchants, and agriculturists of Barbary; but many lead a pastoral life. The dress of the M. consists of a piece of woolen cloth, five ells in length by one and a half in breadth, called a 'haique,' thrown over the shoulders, and fastened round the body; it serves also as a covering by night. This, supplemented by a pair of slippers, a red cap, and a hood, constitutes the sole habiliment of the people generally. In the towns, the 'caftan' is generally worn over the haique. The M. employ the Arabic language, but with many corruptions and deviations from the original, and these appear to increase toward the west.

As the Arab conquerors of Spain invaded that country from Africa, where they had largely recruited their forces, they were naturally enough called Moors, and in Spanish history the terms Moors, Saracens, and Arabs are synonymous. From this mixed Moorish-Arab race sprang the *Moriscoes*, who were permitted by Ferdinand the Catholic to remain in Spain after the expulsion of their countrymen, on condition of their embracing Christianity. A cruel persecution, originated by Philip II., drove them to rebellion (1567–70), and many emigrated to Africa 1571; those who remained being, to the number of 500,000, expelled by Philip III. 1610.

The M. appear in modern history first as allies of the Vandals in their invasion of Africa, and were continually rebelling against the Byzantine emperor. They were next, after a severe struggle, conquered and converted to Mohammedanism by the Arabs 707. In 1091, they were summoned by the Arabs into Spain, to aid in stemming the tide of Christian conquest; and after faithfully supporting the Arab caliph of Cordova, etc., till his dominions fell into the hands of the king of Leon and Castile, they retired, 1238, to Granada, where they founded their kingdom. The Moorish kings of Granada carried on a vigorous, and, at the same time, chivalrous warfare with the kings of Castile; but at length, weakened by internal discord, were compelled to succumb to Ferdinand the Catholic 1492. The M., at least that portion of them who refused to adopt Christianity, were then expelled from Spain, and, in revenge, founded 1518 the piratical states of Algiers and Tunis. Their subsequent history cannot be separated from that of Algiers, Tunis, and Morocco (q.v.): see also BARBARY: BERBERS.

MOORUK, *môr'ûk* (*Casuarius Bennettii*): recently discovered bird of the same genus with the Cassowary (q.v.), of which it was at first regarded as a mere variety; native of the island of New Britain. It is about five ft. in full height, three ft. to the top of the back, is of reddish color, mixed with black, and has a horny plate instead of a helmet-like protuberance on the top of the head. The claw of the inner toe of each foot is very

long. It becomes extremely tame and familiar in captivity; may be fed on potatoes, maize, or any similar

Mooruk (*Casuarius Bennettii.*)

food; and is apt to prove troublesome by swallowing almost any small article, however indigestible, that it finds.

MOOR'VA: see BOWSTRING HEMP.

MOOSE, n. *môs*, or MOOSE-DEER [an Indian name]: the largest of the deer kind; the Amer. elk: see ELK.

MOOSEHEAD LAKE, *môs'hĕd:* largest of the many beautiful lakes for which the state of Maine is noted. It is between Piscataquis and Somerset counties, in a wild region about 75 m. n. by e. of Augusta. It is about 35 m. long, and its width is from two to twelve m. The water is deep and steamers ply regularly during the summer. The lake, 1,023 ft. above sea-level, is the source of the Kennebec river, which flows from its w. side. Its waters abound in fish, and game of various kinds is found in the surrounding forests. On the e. shore Spencer Mountain rises to a height of 4,000 ft. The lake has long been a favorite resort for sportsmen and for summer tourists from distant parts of the country.

MOOT, v. *môt* [AS. *mot* or *gemot*, an assembly; *motan*, to cite before the *moot*, or court of justice (see MEET)—*lit.*, to discuss in or at a meeting]: to bring forward a subject for discussion; to discuss a question, as in a court of justice; to argue or plead on a supposed cause by way of exercise: ADJ. unsettled; disputable. MOOT'ING, imp. MOOTING, or MOOT'-CASE, n. exercise of pleading a mock cause. MOOT'ED, pp. *-ĕd:* ADJ. debated; disputed. MOOT'ER, n. *-ĕr*, one who moots. MOOT'ABLE, a. *-ă-bl*, capable of being mooted or debated. MOOT-HILL, a mound or height on which justice was anciently administered. MOOT POINT or CASE, a doubtful point; a point which admits of being mooted or argued on opposite sides. MOOT'-HALL, the ancient name for a town-hall.

MOOUZZIN, or MUWAZZIN, and MUEZZIN, n. *mô-ĕd'zĭn* [Ar.]: a Mussulman crier to prayers from a minaret or elsewhere; the call to prayer.

MOP, n. *mŏp* [OF. *mappe*, a napkin—from L. *mappa*, a table-napkin: prov. Eng. *mop*, a napkin, a tuft of grass]: a bunch of strips of cloth or coarse yarn, fastened to a stick or handle, and used for cleaning floors: V. to clean or rub with a mop. MOP'PING, imp. MOPPED, pp. *mŏpt*. MOPPET, n. *mŏp'ĕt*, or MOP'SEY, n. *-sĭ* [dim. of *mop*]: a child's baby made up of rags; a puppet made of rags; a term of fondness applied to little girls. MOP-FAIR, a hiring-fair held a few days after the regular or statute fair, with the view of offering for engagements those male and female servants not previously engaged—*literally*, that they might be *mopped* or wiped up.

MOP, v. *mŏp*, and MOW, v. *mow* [Dut. *moppen;* Low Ger. *mupsen*, to mutter, to grumble: Bav. *muffen*, to mutter]: in *OE.*, to gibber and make faces; to make a wry mouth; to grin in contempt: N. a grimace; a gibbering and making faces; a grin in contempt.

MOPE, v. *mōp* [Dut. *moppen*, to make wry faces, to pout: prov. Eng. *mop*, a fool; *maups*, a silly fellow: comp. prov. Ger. *muffen*, to sulk, to mutter]: to be dull, stupid, or drowsy; to be spiritless or gloomy from discontent; to make spiritless or stupid: N. a person low in spirits. MOPING, imp. *mō'pĭng:* ADJ. inactive and affected with dulness; gloomy. MOPED, pp. *mōpt*. MO'PINGLY, ad. *-lĭ*. MO'PISH, a. *-pĭsh*, dull; stupid; spiritless. MO'PISHLY, ad. *-lĭ*. MO'PISHNESS. n. *-nĕs*, the state of being silent, inactive, and dispirited. IN THE MOPES, sulky; out of temper.

MOPPET and MOPSEY: see under MOP 1.

MOQUEGUA, *mō-kā'gwâ:* town of Peru, cap. of the province of M., 68 m. n.w. of Tacna. In the province are many large vineyards, which produce great quantities of wine and brandy. Pop. 9,000.

MOQUETTE, n. *mō-kĕt'* [F.]: fine tapestry or Brussels carpet; a kind of Wilton carpet.

MOQUIS, *mō'kēs:* tribe of Indians in the n.w. corner of Arizona, on the Little Colorado and San Juan rivers; discovered 1540 by European explorers, who gave them some sheep and other stock. Missions were established by the Franciscans in the 17th c., but were destroyed in 1680. In 1723 an ineffectual attempt to subjugate the M. was made by the viceroy of Mexico. Through the efforts of a zealous Franciscan, Juan M. Menchero, 1748, several members of the tribe were converted. Since that time they have been peaceable, but have suffered greatly from attacks of the Apaches and Navajos. They live in villages, grow various farm crops, are temperate, and the women are notably virtuous. When the national govt. assumed their control the M. numbered about 8,000. Their numbers were greatly reduced by small-pox 1855-6 and by famine 1866-7; also some removed to New Mexico. Pop. (1872) 1,663.

MORA, *mō'ra* [Lat.]: term frequent in Scotch law to denote delay caused by negligence. In other legal systems, the corresponding word is Laches (q.v.).

MORA, n. *mō'ra:* genus of trees of nat. order *Leguminosæ*, sub-order *Cæsalpinieæ*, containing only one known species, *M. excelsa*, discovered by Sir R. Schomburgk, and described by him as the most majestic tree of Guiana. The timber, darker than mahogany, is said to be equal to oak of the finest quality. It is valuable for shipbuilding, and is already a considerable article of commerce, under the name *Mora wood.*

MORACEÆ, *mō-rā'sē-ē:* nat. ord. of exogenous plants, or, according to many botanists, sub-ord. of *Urticeæ* (q.v.). The M. are trees or shrubs with rough leaves and sometimes with climbing stems; they have a milky juice; the flowers are very small; the fruits of many flowers are often inclosed in a succulent receptacle, or the calyx becoming fleshy, all the fruits of a head or spike become combined into one. There are about 200 known species, natives of temperate and tropical climates. Some are valuable for fruit, some for the caoutchouc obtained from their milky juice, and different parts of others are applied to various uses. Among the species are figs, mulberries, Osage orange, fustic, and contrayerva.

MORADABAD, *mō-râ-dâ-bâd'*, or MURADABAD', *mô-:* town of British India, cap. of the dist. of M.; on a slightly elevated ridge between the Ramgunga and the Ganges, 90 m. e.n.e. of Delhi. There is a large jail for native convicts: it is capable of holding 1,800. West of the town, and separated from it by the jail, are the cantonments for the troops, agreeably situated amid luxuriant trees; the chief duty of the troops is to guard the convicts. Pop. (1881) 67,387.

MORAINE, n. *mō-rān'*, MORAINES, n. plu. *mō-rānz'* [F. *moraine*, a moraine: It. *mora*, a heap of stones]: accumulations of stones, earth, or debris, at the edges and terminations of all great glaciers. The masses of rock which, by atmospheric action, are separated from the mountains bounding the valleys along which glaciers flow, find a temporary resting-place on the surface of the ice, at the margin of the glacier, and are carried along with it, but so slowly that they form a continuous line along each margin. These lines of debris are called *lateral moraines.* When two glaciers unite, the two inner moraines unite also, and form one large trail in the middle of the trunk glacier, and this is called a *medial moraine.* A large portion of these rocky fragments at length reaches the end of the glacier, and here the melting ice leaves it for future ages as a huge mound, known as a *terminal moraine.* In N. Amer. the e. part of the great terminal M. marking the southward limit of the ancient icy covering, has been accurately traced: it extends from the highest part of Cape Cod, along the highest part of Long Island, crosses Staten Island and N. J., enters Penn.

near Belvidere, thence passes w. and n.w., crosses the Lehigh river a little n. of Mauch Chunk, enters N. Y., then turns s.w. into Penn. again, and crosses s. Ohio, Ind., and Ill. It has been traced farther w., but not so accurately. See GLACIER.

MORAL, a. *mŏr'ăl* [F. *moral*—from L. *morālis*, of or belonging to morals or manners—from *mos* or *mōrem*, manner, way: It. *morale*]: pertaining to or founded on the practices or conduct of men with reference to right and wrong, in their intercourse with others; conformed to right rules; right; just; supported by the evidence of reason or probability; founded on experience, as a moral certainty: N. the lesson taught by a fiction or fable; the practical lesson which a thing is fitted or designed to convey. MOR'ALLY, ad. *-lĭ*, according to the rules of morality; according to the divine law; according to the usual course of things and of human judgment. MORALIZE, v. *mŏr'ăl-īz*, to think, speak, or write on subjects with reference to right and wrong; to make reflections or remarks on good or evil, or on virtue or vice among men; to furnish with a moral. MOR'ALIZING, imp. MOR'ALIZED, pp. *-īzd*. MOR'ALIZER, n. *-ī-zẽr*, or MOR'ALIST, n. *-ăl-ĭst*, one who moralizes; one who teaches the duties of life; also in *OE.* MOR'ALER, n. MOR'ALIZA'TION, n. *-ī-zā'shŭn*, the act of moralizing; explanation in a moral sense. MORALITY, n. *mō-răl'ĭ-tĭ*, the doctrine or science of man's duties (see ETHICS); the general practice of them; the quality of an action which renders it good or bad; *formerly*, the name of a play (see MYSTERIES AND MIRACLE-PLAYS). MORALS, the practice of the duties of life; course of behavior with respect to others; course of life in regard to good or evil; moral philosophy; ethics (see ETHICS). MORAL AGENT, a person capable of understanding the distinction between right and wrong. MORAL PHILOSOPHY, the science which treats of man's social relations and duties; ethics. MORAL SENSE, the feelings of approval of the right or disapproval of the wrong, which in greater or less development are a part of man's nature: see ETHICS.

MORALE, n. *mō-rāl'* [F. *morale*, ethics—from mid. L. *morālis*, moral discourse]: moral condition with respect to zeal, spirit, hope, and confidence; mental state.

MORAL'ITIES: see MYSTERIES AND MIRACLE-PLAYS.

MORAN, *mo-răn'*, EDWARD: b. Lancashire, Eng., 1829; bro. of Thomas M. When 15 years of age he came with his parents to Philadelphia, where he studied painting under James Hamilton, the marine artist, and Paul Weber, the landscape painter. His early work exhibited fine taste and a high degree of skill, and his pictures soon became popular. He was in Europe 1862–69, where he studied the great marine paintings; in the latter year he returned to America, and made his home in New York till 1877, since which time he has resided in Paris. His chosen field has been marine subjects, and several of his pictures have been engraved. Among his works are

The Bay of New York, The Lord Staying the Waters, The Launch of the Life-Boat, and *In the Narrows.*

MORAN′, PETER: b. Bolton, Lancashire, Eng., 1842; bro. of Thomas M. He was educated in Philadelphia and worked with a lithographer, but, not liking the business, left it and studied painting under his elder brothers. In 1863 he went to London, where he spent some time in study, after which he took up his residence in Philadelphia. He is a member of the Penn. Acad. of Design. He has made a careful study of etching, and some of his works in this line have become extremely popular. His paintings of animals and of pastoral scenes also are of high rank. Among his famous works are *Twilight, On the Road to Santa Fé, The Challenge, The Thunderstorm, Settled Rain,* and *The Return of the Herd.* The last-named picture was awarded a medal at the centennial exhibition in Philadelphia.

MORAN′, THOMAS: b. Bolton, Lancashire, Eng., 1837, Jan. 12. His parents brought him, 1844, to Philadelphia, where he attended the public schools till he was 16 years of age, when he was placed as an apprentice with a wood-engraver. He gave his leisure to painting and drawing, in which he was successful, and at the age of 19 he turned to water-color painting, and his pictures found a ready sale. Four years later he began the study of oil-painting, and 1861 went to England, where he studied the works of the leading artists for about a year. In 1866 he again went abroad. After several years of study and travel in England, France, Switzerland, and Italy, he returned to this country and joined the exploring expedition under Prof. Hayden to the Yellowstone river, where he sketched the *Grand Cañon of the Yellowstone,* and two years later went with Maj. Powell's party to the cañons of the Colorado river, and made sketches of the *Chasm of the Colorado.* His paintings from these sketches were purchased by congress for $10,000 each for the capitol at Washington. From his water-color paintings a series of views in the Yellowstone region has been published, and he has illustrated some of the finest books issued in this country. He is a member of the leading societies, and 1886 was pres. of the Art Guild of New York. Among his famous works are *The Groves Were God's First Temples, A Dream of the Orient, The Azure Cliff, The Open Sea, The Remorse of Cain,* and *The Mountain of the Holy Cross,* which was awarded a medal and diploma at the centennial exhibition 1876.

MORANO, *mō-rä′nō:* city of s. Italy, province of Cosenza; on a hill in a wild and rugged neighborhood, 35 m. n.n.w. of Cosenza. It has good manufactures of silk, cotton, and woolen fabrics. Pop. 8,350.

MORASS, n. *mō-răs′* [Dut. *moeras,* a marsh, a fen: Sw. *moras;* Ger. *morast,* a morass: Icel. *myri,* a marsh—from *mor,* peat, turf: connected with *moor,* a tract of waste land]: a tract of soft wet moor or bog; fenny ground; a marsh. MORASS′Y, a. *-răs′i,* marshy; fenny; boggy.

MORAT, *mō-rât'* (L. *Moratum*, Ger. *Murten*): town (pop. abt. 2,350) in the canton of Freiburg, Switzerland, on the Lake of Morat, abt. 12 m. from Bern, famous for the victory of the Swiss and their allies over Charles the Bold, Duke of Burgundy, 1476, June 22. The duke, exasperated by his defeat at Grandson, in March, appeared before the gates of M. with 40,000 men. The Swiss were aided by Strasburg, Basel, Colmar, and other Rhenish cities, and by Duke René of Lorraine, whom the Duke of Burgundy had driven from his possessions; but the superiority of numbers was greatly on the side of the Duke of Burgundy. The assault of the Swiss, however, was very impetuous, and their victory complete; the duke's camp fell into their hands, and he himself escaped only by the swiftness of his horse.

MORATIN, *mō-râ-tēn'*, LEANDRO FERNANDEZ DE: most eminent comic poet of Spain in recent times: 1760, Mar. 10—1828, June 21; b. Madrid; son of Nicolas Fernandez de M., poet of some eminence (1737–80); descended from an old Biscayan family. M. learned the trade of a jeweller, by which, after his father's death, he for some time supported himself and his mother. In 1790 appeared his first and best comedy, *El Viejo y la Nina;* followed by *La Comedia nuova*, *El Baron*, *La Mogigata*, and *El si de las Niñas*. Prince Godoy conferred several ecclesiastical benefices upon him, though the Inquisition set its evil eye upon the poet. Joseph Bonaparte made him chief royal librarian: but his acceptance of this post alienated him from his countrymen, and after 1814, he took refuge in Paris, where he died. His last work was the *Origenes del Teatro Español.*

MORAVA, *mō-râ'vâ:* chief river of Servia; formed by the union of two head streams—the eastern or Bulgarian M., which rises in the mountains s. of the new s. frontier of Servia; and the western or Servian M., which rises on the w. frontier. The united stream flows n. to the Danube, and has a total length of about 180 miles.

MORA'VA, or properly MARCH (called by the ancients *Marus*): river of Austria, rising on the s. slope of the Schneeberg, on the borders of Prussian Silesia, 3,882 ft. above sea-level. It is the chief river of Moravia, to which it gives its name, and flows s. through that crownland, receiving on the right the Thaya, and falling into the Danube, eight m. above Presburg. In its lower course, it forms the boundary between Lower Austria and Hungary. Its length is 184 m., and it is navigable from Göding, more than 60 m. from its mouth.

MORAVIA, *mō-rā'vĭ-a* (Ger. *Mähren*): margraviate and crown-land in the Cisleithian portion of the Austrian empire; 48° 40′—50° n. lat., 15° 5′—18° 45′ e. long.; bounded n. by Prussian and Austrian Silesia, e. by Hungary and Galicia, s. by the duchy of Austria, w. by Bohemia; about 8,580 sq. m. Pop. (1870) 2,017,974; (1880) 2,153,406.

M. is inclosed and traversed on all sides by mountains, being separated from Silesia by the range of the Sudetes; from Bohemia, by the Moravian chain; and from Hungary, by the Carpathian Mts.; while branches of these various chains intersect the whole country except in the s., where the land consists of extensive plains, about 800 ft. above sea-level. The numerous small rivers of the interior follow a s.e. direction, and fall into the March or Morava (q.v.), from which the country derives its name, and then flow together with the latter into the Danube. The Oder and its affluents, the Elsa and Oppa, rise among the mountains on the n.e., whence their course is soon turned directly away from the Moravian territory. There are few extensive lakes, but numerous ponds and small streams, which abound in fish. The more elevated parts of the country are not fertile, and the climate is severe; but in the mountain valleys and on the southern plains the soil is remarkably rich, and the temperature more genial than in other European countries in the same parallel. M., which ranks as one of the richest of the Austrian dominions, has half of its area in arable land. It yields fine crops of grain, and among natural products grown for exportation are hops, mustard, potatoes, clover-seed, beet-root; and in the south, maize, grapes, chestnuts, and many other of the less hardy fruits and vegetables. The breeding of cattle and sheep, and the making of cheese from sheep's milk, are important industries; in the s. districts of the Hanna (a plain famous for fertility), horses are bred for exportation. Geese and fowls are reared in large numbers for their feathers, and the keeping of bees is very successful. The mineral products include iron, alum, saltpetre, coal, graphite, whetstones, sulphur, vitriol, pipe-clay, marble, and topazes, garnets, and other precious stones.

Manufactures, etc.—The principal manufacture is that of linen and thread, which now has a European reputation; and that of cotton goods at Sternberg. M. has long been noted for the excellence of its cloths, flannels, and other woolen fabrics, and for leather goods. The minerals of M., especially coal and iron, are important, and are extensively wrought. Beet-sugar is largely manufactured. Brünn (q.v.), the cap., is the chief emporium for the manufacturing trade, and Olmütz (q.v.) the principal cattle-mart.

The educational wants of the province are provided for by 12 gymnasia and about 1,900 schools. The former university at Olmütz is now represented by a theological faculty, and by a large technical institute. The majority of the people belong to the Church of Rome. There are about 50,000 Protestants and 40,000 Jews.

In nationality, the population may be divided as follows: About 500,000 Germans, nearly a million and a half Slavs, and 50,000 belonging to other races (including Jews). The Slavs of M. are mostly Czechs, with Poles and a few Croats. The Czechs are inferior in all respects to their brethren in Bohemia. The Moravian Poles, though inferior to the Germans as regards industry and cultivation, are a physically well developed, courageous, and enterprising people.

History.—M. was anciently occupied by the Quadi, who, on their migration in the 5th c. to Gaul and Hispania, were replaced first by the Rugii, next by the Heruli and Longobardi, finally by a colony of Slavonians, who, on their settlement in the country, took the name of Moravians, from the river Morava. Charlemagne, who brought the people under nominal subjection after they had spread themselves over a territory greater than the present M., constrained their king, Samoslav, to receive baptism; but Christianity was formally established first in the middle of the 9th c. by Cyril, who must be regarded as the true apostle of the land. M. was made tributary to the German empire before the close of the 9th c.; but in 1029, it was incorporated with Bohemia, after having for a time been a prey to the incursive attacks of its Slavonic and Teutonic neighbors. At the close of the 12th c., M. was erected into a margraviate, and declared a fief of Bohemia, to be held from the crown by the younger branches of the royal house. On the death of Lewis II. at the battle of Mohacz 1526, M., with all the other Bohemian lands, fell to Austria, in accordance with a pre-existing compact of succession between the royal houses. Since then, it has shared the fortunes of the empire, and 1849 it was formally separated from Bohemia, and declared a distinct province and crown-land.

MORAVIAN, a. *mō-rā'vĭ-ăn:* pertaining to the country of *Moravia*, or to the Christian sect or society called Moravian Brethren (q.v.) or Moravians: N. one of the sect. MORA'VIANISM, n. *-ĭzm*, the religious system of the Moravians.

MORA'VIAN BRETH'REN, or MORA'VIANS; called also UNITED BRETHREN, or BOHEMIAN BRETHREN: religious denomination, organized, 1457, by followers of John Huss, at Lititz in Bohemia. They increased in that country, Moravia, and Poland, to more than 100,000, till nearly destroyed by persecution in the 16th and 17th c. In 1722 a small company of refugees, at first only ten persons, received permission from Count Zinzendorf (q.v.) to settle on his estate of Berthelsdorf, Saxony. To this settlement they gave the name of Herrnhut, whence they are commonly known in Germany as Herrnhuters. It rapidly increased, not only by accession of additional Bohemian and Moravian refugees, but of other Christians also, who were attracted by the faith and piety which remarkably prevailed in it. Count Zinzendorf himself, a Lutheran

who had been profoundly influenced by Spener's pietism, came with his household to live with the little brotherhood, and joined them; he devoted his whole estate to the propagation of Christianity, and undertook the work of the ministry. The doctrines which they received being those of the Augsburg Confession, it was proposed that they should unite themselves with the Lutheran Church; but difference of opinion existing, especially on the subject of maintaining proper discipline, and also of the holy communion, it was decided that the *United Brethren*, or *Unitas Fratrum*, as they termed themselves, should remain a distinct denomination; and they adopted an organization of their own essentially like that of their fathers in Bohemia. Strictly, however, they regarded themselves, and the M. in Germany still regard themselves, as a community or congregation within the Evangelical Prot. Church, rather than as a distinct church. Till Zinzendorf's death 1760, he was really their leader, and was recognized by them as *Ordinarius*. After his death, their organization was modified by synods in 1764 and 69.

The M. are recognized by the state in Germany, as Protestants attached to the Augsburg Confession. They have no symbolical books of their own, though they framed a simple and brief confession of their faith 1727; and a brief statement of principles was emitted by a synod 1775.

The M. profess to be connected with the Apostolic Church, through the Waldenses of former times, by a regular succession of bishops. The bishops, however, exercise no prelatical authority, and their chief peculiar function is that of ordination, of which they alone have the power. Every congregation is governed by a *Board of Elders* and a *Board of Trustees*. The whole church is governed by synods, which meet—always in Germany—at intervals of ten or twelve years, and are composed of bishops, and of lay and clerical delegates from every Province of the Unity. Between one synod and another, all affairs are managed by a *Unity's Elders' Conference* appointed by the synod.

M. are to some extent scattered among the general population of the countries in which they dwell, as Britain and America; they formerly preferred, where it was possible, to live in communities, or separate societies, and in these they carried out some very peculiar parts of their organization, particularly a division into seven *choirs* of children, youths, maidens, unmarried brethren, unmarried sisters, widowers, and widows, each having a separate leader or pastor. Unmarried brethren, unmarried sisters, widowers, and widows, resided in separate houses; married couples in houses of their own. These divisions no longer exist in America, and are maintained nowhere but in Germany. *Communities* of M. exist in England, Holland, and other countries, but are most numerous in Germany. The most important

communities, however, are perhaps those in the mission-fields. The Brethren early entered on missionary work, and all the prosperity of their church has been evidently connected with their earnest prosecution of it. This small body of Christians has developed the noblest missionary spirit and the most complete missionary organization in the modern Christian world. The Unity of Moravian Brethren is indeed one great missionary society. Their first mission was planted, 1732, in the island of St. Thomas, in the W. Indies; the missionaries who went thither expressing their resolution to become slaves, if necessary, to carry out their purpose of preaching Christ. A mission to Greenland, which was eminently successful, and may be said to have made Greenland a Christian country, was commenced 1733. They have interesting missions also in Labrador, Alaska, Thibet, s. Africa, and other heathen countries. The M. have at their mission-stations over 85,000 converts from heathenism. One of the most interesting of their stations is at Sarepta, in the govt. of Saratov, in Russia, by which they are connected with the Tartars and Kalmucks. In all their settlements, the education of the young receives the utmost attention.

The religious services of the M. are conducted with great simplicity. They use a litany on the Lord's Day, together with extemporary prayer. They admit the use of instrumental music. They meet on the last day of the year to bring in the New Year with prayer and other exercises of religion. On Easter morning, they assemble in the burying-ground to celebrate the resurrection of Christ, and to express their confidence concerning the brethren who have died during the year. The death of a brother is made known in the communities and some other settlements by sound of trumpets, as for victory.

The first M. who settled in the United States came to Georgia 1735, but on account of the difficulties between the colony and Spain they removed 1740 to Penn., where they founded three towns: Bethlehem, Nazareth, and Lititz. In each of these places, and at some smaller settlements made somewhat later, the peculiar exclusive system which allowed no one outside the church organization to hold real estate was adopted. For about 20 years the church had charge of temporal as well as of spiritual affairs. People having private property retained it; but the lands and shops belonged to and were managed by the church, and it supplied the inhabitants with whatever they needed. A pledge to labor in what seemed to be the most efficient manner possible for the dissemination of the gospel was given by each member. Under this arrangement a large number of devoted Christian men and women were scattered among the colonies and the various Indian tribes, and labored with great success. They were supported by the communities from which they went out. Before the close of the 18th

c. the church relinquished temporal functions, but the policy of exclusive ownership of real estate by M. was continued till 1844. By an act of parliament 1749 the British govt. recognized the M. as an episcopal church, and encouraged the settlement of its members in the N. Amer. colonies. Numerous successful missions were founded among the Indians, of which only a few remain, owing to the violent opposition of the frontiersmen and traders. After the Penn. towns were founded, settlements were made at Salem, N. C. and Hope, N. J., but the latter was soon abandoned. The exclusive policy, while developing great activity in foreign missionary enterprises, hampered the home work of the church, and the general synod at Herrnhut 1857 made important changes in the constitution. The result has been a great increase of membership in the churches of this faith. The General Synod is a confederation of all the churches of the denomination: it has control of the foreign missionary work, settles all questions of doctrine, and legislates for the Unity in general. To it each of the three provinces of the *Unitas Fratrum* (the Continental, British, and American) sends nine delegates; the foreign missions also are represented, and there are a few *ex-officio* members. But in all provincial matters each province is self-governing and has a synod of its own with a full board of officers and ample provision for management of church affairs. The American province has been divided into two districts—the northern with its seat at Bethlehem, Penn., and the southern with its seat at Salem, N. C.; each of which districts has its own synod. Each province maintains church boarding-schools, a theol. seminary, and various domestic missions, in addition to its contributions to the foreign field. At Bethlehem, Penn., there is also a college of the M. According to official statistics 1889 there were in the United States 98 churches, 111 ministers, and 11,219 members.

In the three home provinces (German, English, American) there were, 1889, in all, 18 bishops, over 300 presbyters and deacons, and over 21,000 communicants. In foreign missions (including 3 in Bohemia and Moravia) were 3 bishops, 170 missionaries, 110 female assistants, 1,550 native assistants, and 85,806 members. See histories in German by Cröger (1865,) Gindely (1868), and Goll (1882); in French by Bost (1844, English transl.); and in English by Holmes (1825) and De Schweinitz (1885); see also Seifferth's work on the constitution of the church.

MOR'AY, EARL OF: see MURRAY, JAMES STEWART.

MORAY FIRTH, *mŭr'ĭ fĕrth:* indentation of the n.e. coast of Scotland, on the German Ocean. Its n.w. shore is formed by the counties of Ross and Cromarty, and extends from Kessock Ferry, opposite Inverness, to Tarbet Ness. Its s.e. shore extends from Inverness to Burghead, in Elginshire. The entrance of the firth

between Burghead and Tarbet Ness is 16 m. wide; and from its entrance to Inverness it is 31 m. long. The firth is continued westward from Inverness by a branch called Beauly Basin.

MOR'AYSHIRE: see ELGINSHIRE.

MORBID, a. *mŏr'bĭd* [F. *morbide*—from L. *morbĭdus*, sickly, diseased—from *morbus*, disease; It. *morbido*]: diseased; not sound and healthful. MOR'BIDLY, ad. *-lĭ*. MOR'BIDNESS, n. *-nĕs*, and MORBID'ITY, n. *-ĭ-tĭ*, the state of being diseased or unsound; morbid character. MORBID ANATOMY, the study of the alterations in the structure of the body produced by disease.

MOR'BID AP'PETITES: abnormal desires in relation to food. They consist of desires which are, in character, natural and necessary to the animal economy, but becomes unhealthful when excessive and irresistible; e.g., the hunger which attends marasmus, and the thirst which attends diabetes. They may consist further in a craving for articles or objects not in reality deleterious or detrimental, but which do not constitute the ordinary gratification of the appetite, such as the desire for chalk and lime experienced by chlorotic and hysterical women. They may, thirdly, consist in the longings, often complicated with delusions, felt by pregnant women and others, which are injurious, repugnant to nature, and revolting. Georget gives a horrible instance. In such a case, the gross longing may be said to constitute the disease; but there are others in which it is one of many symptoms demonstrating the degradation of the mind under general disease, as when the insane devour garbage, excrement, or swallow grass, hair, stones.—Georget, *Dict. de Médecine;* Feuchtersleben, p. 276.

MORBIFIC, a. *mŏr-bĭf'ĭk*, or MORBIF'ICAL, a. *ĭ-kăl* [L. *morbus*, disease; *facĭō*, I make]: causing a disease; generating a sickly state.

MORBIHAN, *mor-bē-ŏng':* maritime dept. in n.w. France, formed out of ancient Bretagne; 2,615 sq. m. The coast is much indented, and has a multitude of bays, roadsteads, harbors, and islands. The largest island is Belle Isle (q.v.). The dept. is somewhat hilly, but toward the sea, the land stretches out in rich plains, interrupted, however, by great tracts of heath and marsh. The climate is mild, but moist. The soil is not well cultivated, but yields sufficient grain for home consumption. The heaths afford fine pasturage, and support great herds of horned cattle, sheep, and horses. The rearing of bees is a source of considerable revenue; as also are the river and coast fisheries. The trade in sardines is very extensive. The want of wood is so great, that the peasants are obliged to burn dung extensively. The chief mineral is iron, but there are almost no manufactures. M. is divided into four arrondissements, Vannes, L'Orient, Ploermel, and Pontivy. The chief town is Vannes (q.v.), but the most populous is L'Orient, (q.v.). Pop. of M. (1881) 521,614.

MORBILLOUS, a. *mŏr-bĭl'lŭs* [mid. L. *morbilli*, measles: It. *morbilloso*, belonging to the measles—from L. *morbus*, disease]: pertaining to the measles; measly. **MORBILLI**, n. plu. *mŏr-bĭl'lī*, the measles.

MORCEAU, n. *mŏr-sō'* [F.]: a bit; a morsel.

MORDACIOUS, a. *mŏr-dā'shŭs* [L. *mordax* or *mordācem*, biting or given to bite—from *mordĕō*, I bite: It. *mordace*]: apt to bite; biting; snappish; sarcastic. **MORDA'CIOUSLY**, ad. *-lĭ*. **MORDACITY**, n. *mŏr-dăs'ĭ-tĭ* [F. *mordacité*—from L. *mordacĭtātem*, the power of stinging]: the power or quality of biting.

MORDANT, n. *mŏr'dănt* [F. *mordant*, biting—from L. *mordens* or *morden'tem*, biting, consuming]: any substance employed to fix and give permanency or brilliancy to the color produced by dye-stuffs (see DYEING): any adhesive matter by which gold-leaf is made to adhere to a body: ADJ. serving to fix colors; biting; caustic.

MORDAUNT, *mawr'dant*, CHARLES, Earl of Peterborough and Monmouth: abt. 1658–1735, Oct. 25: military and naval commander, one of the most brilliant Englishmen of his time; son of John, Lord Mordaunt. He served as a boy in the navy, and then entered the army. He took part against James II., and was made Earl of Monmouth by William III., succeeding afterward to the earldom of Peterborough, as heir to his uncle. During the war of the Spanish Succession, the English govt. determined to send an expedition to Spain. It was placed under the command of M.; and 1705, June, he arrived in Lisbon with 5,000 Dutch and English soldiers. After taking on board the archduke Charles of Austria, who claimed the Spanish crown, the armament proceeded to Valencia. Here M., with characteristic daring, conceived the idea of making a dash at Madrid, and finishing the war at one blow. He was overruled by the archduke and the Prince of Hesse, and compelled to besiege Barcelona, which was defended on one side by the sea, and on the other by the strong fortifications of Monjuich. By a *coup de main*, he made himself master of Monjuich. Barcelona fell, and M., with a handful of men, entered one of the strongest cities of Europe. He pushed his successes into the interior. Several towns submitted. He marched to Valencia in the depth of winter, and at the head of 1,200 men defeated a Spanish force of 4,000. The Spaniards sent a large army into Catalonia, and a French fleet appeared off Barcelona. M. harassed the enemy's army, and putting himself on board the English squadron, directed a movement which, had it been executed a few hours earlier, would have resulted in the capture of the whole French fleet. The Frenchmen put to sea, and Barcelona was saved. M. again wished to march toward Madrid, but his plan for gaining possession of the capital was once more rejected by Charles. He accordingly left the army in a fit of pique, and went to Italy. In 1707, he returned to Valencia as a volunteer, and gave excellent advice, which was not

followed. He was recalled to England, and from that moment the tide of fortune ran strong against the Austrian cause. Few generals have done so much with means so small, or displayed equal originality or boldness. His fertility and activity of mind were admirably seconded by a most intrepid spirit. His splendid talents, on the other hand, were disfigured by vainglory, and a morbid craving for novelty and excitement. He loved to fly round Europe, and was said to have seen more kings and postilions than any other man of his day. On his return, he made common cause with the tories, to spite the Duke of Marlborough, and received the Garter and other dignities for his services. On the accession of George I., he was appointed commander-in-chief of the naval forces of Great Britain; but was never again employed in active service. He died at Lisbon. His witty, yet affectionate letters to Pope, Swift, Prior, etc., give fine insight into his private character. See Eliot Warburton's *Memoir of Charles Mordaunt, Earl of Peterborough and Monmouth, with Selections from his Correspondence*, 2 vols. (1853). His character has been sketched by Horace Walpole, in his *Catalogue of Royal and Noble Authors;* and with still greater force and picturesqueness by Macaulay.

MORDVINIANS, or MORDVINS (correctly MORDVA, or MORDVS): a people living principally in the middle Volga region of Russia, a division of the Finnish race, for a long period occupants of their present territory. In the 12th c. their homes were invaded by the Russians, who planted many colonies among them, and who now, though living in separate villages, form the principal portion of the populations of the provinces in which the M. are found. There are two branches of M., differing somewhat in features and language. To a great extent they have adopted Russian manners and customs. They are honest and industrious, are good farmers, give much attention to bees, in whose culture they are very successful, and are skilful carpenters. They manufacture considerable wooden-ware. They are nominally Christian, but have many heathen practices. The s. branch, especially, worship various natural objects and offer animal sacrifices. Their present number is about 1,000,000.

MORE, a. *mōr* [AS. *ma*, more; *mara*, greater, more: Gael. *mò*, *mòr*, *mòid*, great, many, much; *mair*, to last: W. *mawr*, much]: comparative degree of *much;* greater in number, quantity, quality, or degree; additional: AD. to a greater degree; a second or another time: N. a greater quantity, number, or degree; other or greater thing, as, we can do no *more*. THE MORE, to a greater degree; for the reason already stated. NO MORE, existing no longer; dead. MUCH MORE, in a greater degree, or with more readiness. MORE AND MORE, with continual increase. MORE THAN PROBABLE, little short of certainty. *Note.*—In *OE.*, *mo* was used in reference to number, *more* to size—see Skeat.

MORE, *mōr*, HANNAH: 1745–1833, Sep. 7; b. Stapleton, near Bristol, England; daughter of a village schoolmaster. She wrote verse at an early age; and 1773 she published a pastoral drama, *The Search after Happiness*, and the next year her tragedy, *Regulus*. Under the idea that she was possessed of dramatic talent, she was introduced to Garrick, and through him became acquainted with Dr. Johnson, Burke, and Sir Joshua Reynolds: by these and other literary men she was greatly admired for wit, vivacity, and graceful simplicity of character. Deeply impressed with the importance of religion, she gradually resigned her ambition to shine as a writer for the stage, and after the publication of her *Sacred Dramas* she retired to the country, and busied herself with the composition of works of a more serious and practical cast, the best remembered of which are *Cœlebs in Search of a Wife* and *The Shepherd of Salisbury Plain*. She died at Clifton. Her writings, though not profound, are fresh, animated, forcible, and impressive, and always in the interest of piety and the simple social moralities. Some of her shorter sketches had immense popularity. In her later years she abounded in philanthropic work.

MORE, Sir THOMAS, Lord Chancellor: 1478, Feb. 7—1535, July 7; b. in Milk Street, London; son of Sir John M., justice of the queen's bench. He was educated at St. Anthony's School, Threadneedle Street; and in his 15th year was placed in the house of Cardinal Morton, Abp. of Canterbury, who used to say of him: 'This child here waiting at the table, whoever shall live to see it, will prove a marvellous man.' Dean Colet, too, was wont to say: 'There was but one wit in England, and that was young Thomas More.' In 1497 M. went to Oxford, where he made the friendship of Erasmus. He then applied himself to the law, and studied first at New Inn, and afterward at Lincoln's Inn. He was appointed reader at Furnival's Inn, where he lectured three years. At the accession of Henry VIII., his professional practice was considerable, and he also held the office of judge of the sheriff's court in the city—his income from these sources being equivalent to £4,000 or £5,000 of present money. He went on several missions abroad for the king, and in 1516 was made a privy councilor: at this time his public life began. He became so great a favorite with Henry VIII., that, in the words of Erasmus, 'the king would scarcely ever suffer the philosopher to quit him.' Henry visited him uninvited at Chelsea, and walked with him by the hour in his garden, 'holding his arm about his neck.' Yet M. had a true insight into Henry's character, for being congratulated on the king's favor by his son-in-law, Roper, he replied: 'If my head would win him a castle in France, when there was war between us, it should not fail to go.' M. is the first person in British history distinguished by the faculty of public speaking, and remarkable for the successful employment of it in parliament against a lavish grant of money to the crown. Being elected speaker of the house

of commons 1523, he vindicated the ancient liberties and privileges of the house against Cardinal Wolsey, who rather feared than liked him. In 1529, when the prosecution was opened against Wolsey, the king delivered the great seal to M. at Greenwich, constituting him lord chancellor, a dignity that had been held generally by ecclesiastics, and had never yet been filled by a common lawyer. When he was seated in his court of chancery, his father, Sir John M., aged nearly 90 years, was the oldest judge of the king's bench. It was a beautiful spectacle to 'see the son ask the blessing of the father every day upon his knees, before he sat upon his own seat.' Unlike the haughty Wolsey, whom no suitor could approach without offerings, M. sat daily in an open hall, that he might receive in person the petitions of the poor. He dispatched the causes so speedily and diligently, that on asking for the next he was told that none remained. Henry in vain endeavored to obtain M.'s authority for his divorce with Catharine of Aragon, and his marriage with Anne Boleyn, on which he had set his heart. As soon as the progress of the marriage was so far advanced that the active co-operation of a chancellor was required, M. obtained leave to resign the great seal. He left his great office a poor man; his income not exceeding £100 a year. When the king 'by no gentleness could win him,' his favor turned to fury. M. refused to take an oath which pledged him to the lawfulness of the king's marriage with Anne Boleyn. He was committed to the Tower, where he remained 13 months; and 1535, May 6, he was brought to trial at Westminster. It has been said that 'no such culprit had stood at any European bar for a thousand years.' He was convicted by the most flagrant perjury and injustice, and sentenced to the savage punishment of beheading for high treason. He suffered death in the Tower, 1535, July 6. In the words of Addison: 'The innocent mirth which had been so conspicuous in his life did not forsake him to the last. When he laid his head on the block, he desired the executioner to wait until he had removed his beard, "for that had never offended his Highness."' His head was placed on London Bridge, but was taken down and preserved by his favorite daughter, the admirable Margaret Roper, the story of whose tenderness and devotion will live as long as the English language endures. His *Utopia* is the conception of an imaginary commonwealth, in which opinions are expressed of great boldness and originality, and especially favorable to freedom of inquiry, even in religion. He, however, wrote against the Lutherans, and corrected the MS. of Henry's answer to Luther. The terseness and liveliness of his sayings, his sweet temper and affectionate disposition, his blameless life, his learning and probity, combine to make a union of perfect simplicity with moral and intellectual greatness, which will forever endear his memory to his countrymen of every sect and party.

MOREA, *mō-rē'a:* name borne by the ancient Peloponnesus (q.v.) since the middle ages, if not from as early as the 4th c. It is usually said to be derived from *morus*, a mulberry—the outline of the peninsula bearing a resemblance to the leaf of that tree; others, however, such as Fallmerayer, trace it back to the Slavic word *more*, the sea, which nearly encircles the Morea. The M. forms the most southern part of the kingdom of Greece, and is divided into the nomarchies of Argolis, Corinth, Laconia, Messenia, Arcadia, Achaia, and Elis.

Overrun by the Goths and Vandals, it became a prey, in the second half of the 8th c., to bands of Slavic invaders, who found it wasted by war and pestilence. Gradually, however, these barbarians were subdued and Grecianized by the Byzantine emperors. Nevertheless, the numerous names of places, rivers, etc., of Slavic origin, prove how firmly the Slavs had rooted themselves, and that the Moreotes are far from being pure Greeks. In 1207 the peninsula was conquered by French knights, and Achaia was formed into a principality with all the feudal institutions of the west. After 1261, the Byzantine emperor, Michael VIII. Palæologus, reconquered part of the country; but the principality of Achaia remained in the family of Villehardouin till 1346, when the male line became extinct. Various claimants now arose, and much strife and confusion ensued. At length, 1460, the greater portion of the M. fell into the hands of the Turks, who retained possession of it till the Greek revolution, except 1687–1715, when it was held by the Venetians. The long struggle between the Turks and the Venetians diminished the population so much that it had (1719) only 200,000 inhabitants, and the plagues of 1756 and 82 even reduced it to half this number. After the French Revolution, however, it began to increase; at the outbreak of the War of Independence, 1827, it had reached 300,000, of whom only one-sixth were Turks: pop. (1880) 745,000.

MOREAU, *mo-rō'*, JEAN VICTOR: greatest general of the French Republic, except Bonaparte: 1763, Aug. 11—1813, Aug. 27; b. Morlaix, in Bretagne; son of an advocate. He was sent to study law at Rennes. He took the side of the Revolution, was chosen to command the battalion of volunteers from Rennes, served under Dumouriez 1793, and evinced such military talent that 1794 he was made a gen. of division. His father, whose political opinions differed from his own, was put to death by the guillotine under the Reign of Terror; and M. hesitated for a moment, but resolved that he could not withdraw from the service of his country. When Pichegru fell under suspicion, the Directory appointed M., in the spring of 1795, to chief command on the Rhine and Moselle. He crossed the Rhine at Kehl, defeated Latour at Rastadt, and the archduke Charles at Ettlingen, and drove the Austrians back to the Danube. But, owing to errors in the plan of the campaign, against which he had in vain remonstrated with the Directory, M. found himself in danger of being cut off from the Rhine, and was

compelled to make a desperate effort to regain that river, which he accomplished by a march of 40 days. This retreat, in which he even brought back more than 5,000 prisoners, established his reputation for generalship more than all his previous victories.

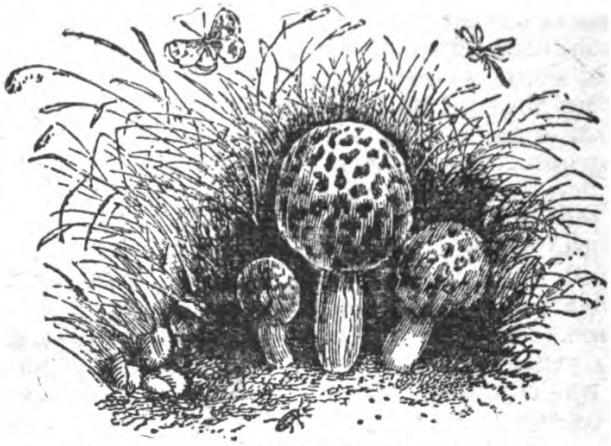
A suspicion of participation in the plots of Pichegru led to his being deprived of his command, after the *coup d'état* of 18th Fructidor. In the following year, he succeeded Schérer in the command of the army in Italy, when it was hard pressed by the Russians and Austrians, M.'s 25,000 men being opposed to 80,000. By a retreat conducted with consummate skill, and in which he even gained victories, he saved the French army from destruction. The Directory, nevertheless, deprived him of the chief command, and gave it to Joubert. But M. remained with the army, and aided Joubert to the utmost ; and after that young general's death at Novi, assumed the command, and conducted the defeated troops to France. The noble disinterestedness of M.'s character, his military talent, and his political moderation, induced the party which overthrew the Directory to offer him the dictatorship of France, which he declined, and lent his assistance to Bonaparte on 18th Brumaire. Receiving the command of the army of the Rhine, M. gained victory after victory over the Austrians in the campaign of 1800, and at last won the great and decisive battle of Hohenlinden (q.v.). A strong feeling of mutual distrust now arose between M. and Bonaparte, who sought in vain to win M. to himself; and M.'s splendid country-seat to which he retired, became the gathering-place of the discontented. To this state of affairs, M.'s ambitious wife, who had great influence over him, largely contributed. Bonaparte surrounded him with spies, and ere long he was accused of participation in the plot of Cadoudal (q.v.) and Pichegru against the life of the First Consul. He was arrested, brought to trial, and found guilty, 1804, June 10, though the evidence against him was utterly insufficient. But Bonaparte could not venture on a sentence of death, and a sentence of two years' imprisonment was therefore pronounced, which was commuted into banishment, and M. went to America, where he settled in New Jersey, remaining in America seven years. Regarding with great dissatisfaction the whole of Bonaparte's further career, and influenced by his old comrade Bernadotte, then crown-prince of Sweden, and by his wife's restless spirit, he thought it his duty to France to give his aid to the allies in the campaign of 1813, and leaving the United States in the company of a Russian agent, he landed at Gothenburg, had an interview with Bernadotte, and accompanied the emperor of Russia and the king of Prussia in the march against Dresden, where, as he stood with Emperor Alexander on a height at Raecknitz, a French cannon-ball broke both his legs. Amputation was performed, but he died at Laun in Bohemia.—M. showed his great military genius especially in saving armies in almost hopeless retreats.

MORECAMBE BAY, *mōr'kâm:* inlet of the Irish Sea, on the n.w. coast of England, separating the main portion of Lancashire from the detached portion of Furness; about 10 m. in average breadth, and 16 m. in length. It receives the Leven, the Kent, and the Lune. The depth of water in the bay is never great except in the channels of the rivers; and when the tide is out, the water entirely withdraws for the time, and there is a road, though a dangerous one, across the sands from the vicinity of Lancaster into Furness.

MOREEN, n. *mō-rēn'* [from *mohair:* F. *moiré,* clouded woolen stuff, as moreen]: stout woolen stuff used for curtains, etc. (see MOIRE). *Note.*—MORINA in *OE.* signifies the wool of sick sheep and those dead of the murrain.

MOREL, n. *mō-rĕl'* [F. *morelle*]: a plant, the *Atropa belladonna,* also the *Solanum nigrum,* or petty morel, ord. *Solanācĕæ.*

MOREL, n. *mŏr'ĕl* [F. *morille;* Ger. *morchel*], (*Morchella*): genus of fungi, of the division *Hymenomycetes,* having a fistular stalk, and a roundish or conical *pileus,* the upper surface of which is divided into an irregular net-work of cells or pits, and bears the *hymenium.* They grow on the ground, and have a more or less agreeable smell and taste. Some are reckoned among esculent fungi, of which the best known is the COMMON M. (*M. esculenta*), a fungus common in many parts of middle and



Common Morel (*Morchella esculenta*).

s. Europe. Its stalk is only about an inch high, and it has a roundish, oval, oblong, or conical, yellowish or brown pileus. It is nutritious, and not difficult of digestion; but is used chiefly in sauces and gravies, for its pleasant flavor. It is used either fresh or dried, and is often brought to market dried. It grows in lawns, and among fallen leaves in thinner parts of woods where the soil is light, and makes its appearance in spring. It makes excellent ketchup. In Germany, the M. is highly prized, and as it very often springs up when part of a forest has been burned, the forests of Germany were

sometimes destroyed for its sake, till this practice was restrained by severe penalties. Its cultivation has not been attempted, though probably it would not be difficult. A very similar species is *M. patula*, used in the same way; as is also the BOHEMIAN M. (*M. Bohemica*), which has a stem 4–8 inches high, and a thimble-shaped, obtuse, white-margined pileus, with longish narrow pits of many various forms; abundant in Bohemia, and when dried in a baker's oven, a considerable article of export. The name M. (*Morchel*) is extended in Germany to some of the edible species of *Helvella* (q.v.).

MOREL or MORELLE, n. *mō-rĕl′* [It. *morello*, of a black color: F. *morillon*, a black grape]: the tree which bears the well-known *morello*-cherry; a cultivated variety of the wild cherry, or *Cerăsus ăvĭŭm*, Ord. *Rosăcĕæ*—much used in making cherry-brandy.

MORELIA, *mō-rā′le-a*, formerly VALLADOLID, *vâl-yâ-thō-lēth′*: city of Mexico, cap. of the state of Michoacan, in a fine valley, surrounded by high mountains, 125 m. w.n.w. of Mexico. Among the mountains is the great Quinceo Mountain, 11,000 ft. high. There is a magnificent aqueduct for the supply of water. M. was the birthplace of Iturbide, the short-lived emperor of Mexico. Pop. (1880) 20,400. (For *Valladolid* in Yucatan, see VALLADOLID, Mexico).

MORELLA, *mō-rĕl′yâ* (anc. *Castra Ælia*, winter-quarters of Sertorius): town and important fortress of Spain, province of Castellon, about 80 m. n. of Valencia. M. was the chief stronghold of Cabrera, who scaled the castle at night by ropes furnished by a partisan within, 1838, Jan. 25. It was retaken 1840 by Espartero, after a brave defense. There are interesting Roman and Moorish antiquities. Pop. 7,300.

MORE′LOS Y PARON, JOSÉ MARIA: Mexican insurgent leader (1780–1815): see MATAMOROS, MARIANO.

MOREOVER, ad. *mōr-ō′vĕr* [*more*, and *over*]: beyond what has been said; further; besides.

MORESQUE, a. *mō-rĕsk′* [F. *moresque*, Moorish—from It. *moresco*, Moorish—from *Moro*, a Moor]: done after the manner of the Moors; architectural decoration in the Moorish style: N. architecture or decoration after the Moorish style. See ARABESQUE: GROTESQUE. Though named after the Moors, it was the invention rather of Byzantine Greeks.

UNIVERSITY OF
ILLINOIS LIBRARY

MORETON BAY, *mōr'ton:* body of water on the e. coast of Queensland, Australia; formed inside the islands of Moreton and Stradbroke, the former 23 m., the latter 35 m. in length, and both about 5 m. in greatest breadth. M. B. is 65 m. in length (lat. 27°—27° 55′ s.) by 23 m. in greatest breadth. Its shores are rich in soil, and admirably adapted for agriculture. Its appearance is picturesque and beautiful, with numerous islets, some of them capable of profitable cultivation. Into this bay five navigable rivers, the Arrowsmith, Logan, Brisbane, Pine, and Caboolture pour their waters. The entrance at the n. end is practicable at all times for vessels of the largest size; the entrance between Moreton and Stradbroke is narrow, and less safe.

MORETON-BAY CHESTNUT (*Castanospermum Australe*): tree of nat. order *Leguminosæ*, sub-order *Papilionaceæ*, native of Queensland, Australia. It attains a height of 70–100 ft., has wide-spreading branches, pinnate leaves, and large racemes of beautiful red and yellow flowers. The pods are six or seven inches in length, and the seeds are in size and quality somewhat like chestnuts.

MORGAN, *mawr'gan*, DANIEL: abt. 1736–1802, July 6; b. Hunterdon co., N. J. He removed 1754 to Va., and served with distinction in the French and Indian war. About 1762 he married and settled on a farm near Winchester, Va. He was a lieut. in Pontiac's war, went to Boston as capt. of a company to join the continental army 1775; was sent to Quebec, where he was taken prisoner, but was paroled and afterward exchanged. At the request of Washington he was commissioned col. He became brig.gen. 1780, commanded at Cowpens, the most brilliant engagement of the Revolution, for which service congress awarded him a gold medal. A violent attack of rheumatism compelled his retirement. In 1795, as maj.gen., he commanded the force which put down the whisky insurrection in Penn. He was elected to cong. 1796, but on account of ill-health was unable to serve out the term. He died at Winchester, Va.—His nephew, CHARLES W. M. (1790–1853, Jan. 3; b. Va.), entered the navy 1808. For gallant service 1812 he was given a sword by the Va. legislature. He rose in rank, and 1841–43 was commander of the squadron in the Mediterranean.

MOR'GAN, EDWIN DENNISON, LL.D.: 1811, Feb. 8—1883, Feb. 14; b. Washington, Berkshire co., Mass. He went to Hartford, Conn., 1828, and was clerk three years in the wholesale grocery store owned by his uncle, Nathan M. He then became a partner in the business. The following year he was elected a member of the city council. He removed 1836 to New York, and opened a mercantile establishment, in which he was very successful. He was a member of the state senate 1850–63, and for several years was chairman of the repub. national committee. He was gov. of N. Y. 1858–62. In 1861 he was placed in command of the milit. dept. of N. Y. as

maj.gen. of vols., and 1863–69 served in the U. S. senate. He was offered 1865 the position of sec. of the U. S. treasury, but declined it. He was nominated 1875 by the republicans of N. Y. for U. S. senator, and the following year for gov. In 1881 he again declined the secretaryship of the U. S. treasury. He was a liberal benefactor of Williams College and of the Union Theol. Seminary. In his will he gave to charitable and religious institutions more than three-quarters of a million dollars. He died in New York.

MOR'GAN, FORT, and FORT GAINES, Capture of: 1864, Aug. 8–23. These forts, opposite each other, guard the entrance to Mobile Bay. The former is on the w. end of Mobile Point (q.v.), where Fort Bowyer formerly stood. The latter is on the e. end of Dauphin Island and occupies the site of the old Fort Tombigbee. 1861, Jan., the state authorities of Ala. took possession of these forts, which they held without resistance till the summer of 1864. Meanwhile the city of Mobile and the channel leading thereto had been protected by the construction of elaborate defenses. When an attack seemed imminent batteries were ranged along the channel and a few ships with 22 guns and 470 men were stationed under cover of the guns of Fort Morgan. The attacking fleet, under Admiral Farragut, consisted of 18 ships with 199 guns and 2,700 men. It passed by the forts 1864, Aug. 5. The *Tecumseh*, leading the fleet, was sunk by a torpedo, and her captain and crew were lost. After a contest of about an hour, in which the attack was aided by a force of 1,500 men under Gen. Granger, stationed on Dauphin Island, the remaining Union ships entered the bay and conquered the Confederate fleet. On Aug. 8 Fort Gaines, with its garrison of 800 men, was taken; Aug. 22 Fort Morgan was almost demolished by bombardment, and it was surrendered on the following day. The next spring the remaining defenses of Mobile, the objective point of attack, were taken, and the city was occupied Apr. 12 by the Union forces.

MOR'GAN, GEORGE WASHINGTON: 1820, Sep. 20; b. Washington co., Penn. After a partial college course he entered the Texan army 1836 as lieut., and was promoted capt. He was in West Point Milit. Acad. 1841–43, then studied law and entered on its practice at Mount Vernon, O. In the Mexican war he rendered valuable service, and was brevetted brig.gen. He was U. S. consul to Marseilles 1856, and minister to Portugal 1858–61. In the latter year he entered the Union army as brig.gen. of vols., and served with distinction till 1863, June, when, on account of ill-health, he resigned. He was dem. candidate for gov. of O. 1865, and was sent to congress the next year, but his seat was successfully contested. He served in cong. 1869–73, and was a delegate to the national dem. convention 1876.

MOR'GAN, JAMES DADY: b. Boston, Mass., 1810, Aug. 1. When 16 years of age he went to sea in the *Beverley*, upon which a mutiny occurred, and afterward the ship was burned. He succeeded in reaching S. America, and after great peril and suffering returned to Boston. He went to Quincy, Ill., 1834, became a merchant, was capt. of a military co. during the Mormon troubles in that vicinity, and held the same office in the Mexican war. In 1861 he was lieut.col., was promoted 1862 brig.gen. vols., and 1865 breveted maj.gen. vols., for distinguished service. Since the close of the war he has resided in Quincy.

MOR'GAN, JOHN HUNT: 1826, June 1—1864, Sep. 4; b. Huntsville, Ala. He removed to Ky. 1830, settling near Lexington. In the Mexican war he was lieut. in a cav. regt. At the opening of the civil war he was engaged in a manufacturing business at Lexington, Ky., but promptly joined the Confederate army, in which he served as capt., and later took command of a cav. force. He carried on a series of raids upon the Union outposts, tearing up railroads, burning bridges, destroying military stores, and cutting off communication with the North. His plans were laid with the greatest skill, carried out with wonderful energy, and, for a time, with success. He became maj.gen. 1862, and the following year entered on an extensive raid in Ky., Ind., and O. In the latter state he was captured and confined in the penitentiary, but soon escaped and reached the Confederate lines. He then organized a raid in Tenn., but while resting at night in a farmhouse near Greenville, he was surprised by a detachment of Union cav. under Gen. Gillem, and, in an endeavor to escape, was killed.

MOR'GAN, JOHN PIERPONT: b. Hartford, Conn., 1837, Apr. 17; son of Junius S. M. He studied at the English high school, Boston, and the Univ. of Göttingen, Germany. He became connected 1857 with a banking firm in New York; in 1860 he accepted the United States agency of George Peabody & Co., the London bankers, and was afterward agent for the firm by which that was succeeded. He entered 1864 the banking firm of Dabney, M. & Co., and 1871 became junior partner of Drexel, M. & Co. He was prominent and skilful in railroad affairs, and was particularly successful in improving the financial condition of the Philadelphia and Reading r. r. He gave $50,000 to aid in founding the free library in Hartford 1889. After the death of his father in the latter year he went to London to take charge of the banking business of J. S. M. & Co. in that city.

MOR'GAN, JUNIUS SPENCER: 1813, Apr. 14—1889, Apr. 8; b. West Springfield (present Holyoke), Mass. He went to Boston when 16 years of age, where he worked about five years. He was then for 18 months with a banking house in New York, after which he was junior partner in a dry-goods house in Hartford. He married 1836 a daughter of John Pierpont. In 1851 he entered into partnership

with J. M. Beebe of Boston. The firm, known as J. M. Beebe, M. & Co., soon became prominent in the dry-goods line. In 1854, Oct., M. became a partner in the banking firm of George Peabody & Co. of London, of which he became the head 1864, when Mr. Peabody retired. The firm name was changed to J. S. M. & Co., and under his skilful management the house rapidly grew into one of the leading banking institutions in the world. M. was an active member of the Prot. Epis. Chh., and was a liberal benefactor of educational and charitable institutions. The New York Metropolitan Museum of Art received from him 1887 a valuable painting by Sir Joshua Reynolds. During the last three years of his life he resided at Monte Carlo. In 1889 he offered to give $100,000 for a free library in Hartford on condition that $400,000 should be secured from other sources. This amount was obtained about three weeks before he died. His death, which occurred at Monte Carlo, resulted from injuries caused by being thrown from his carriage.

MOR'GAN, LEWIS HENRY, LL.D: 1818, Nov. 21—1881, Dec. 17; b. Aurora, N. Y.: 'Father of American Anthropology.' He graduated from Union College 1840, was a lawyer in Rochester 1844–64, but from the time of his graduation gave much time and study to Indian habits, customs, and family relationships. He commenced 1847 a series of *Letters on the Iroquois*, followed by many papers and books on kindred subjects. He prepared schedules which were circulated throughout the civilized world, conducted a large correspondence, and arranged for publication the facts thus obtained. The work was issued by the Smithsonian Institution with the title, *Systems of Consanguinity and Affinity of the Human Family.* M. was elected to the N. Y. legislature 1861, and the senate 1868. He was a member of the National Acad. of Sciences, and of several other scientific bodies, and was elected 1879 pres. of the American Assoc. for Advancement of Science. Among his works were *The American Beaver*, *Ancient Society*, and *Houses and House-Life of the American Aborigines.* He died at Rochester, N. Y.

MOR'GAN, Lady SYDNEY (OWENSON): abt. 1777–1859; dau. of a theatrical manager, named Owenson, who settled in Dublin. It is usually stated that she was born 1786, but as she refuses to tell the date of her birth, 'because dates are so cold, false, and erroneous,' the reader of her autobiography may be advised to set the date about 10 years earlier. Her father fell into pecuniary difficulties, and the clever, bold, and lively young woman resolved to support the fortunes of the family, first as governess, then as author. She wrote *The Wild Irish Girl* 1806. A lady-novelist was then rare, and Irish subjects were less hackneyed than they have since become. Sydney Owenson obtained a footing in the household of the Marquis of Abercorn, in whose establishment her future husband, (afterward Sir) Thomas Charles M., M.D. (1783–1843; b. England), held the post of private physician. The lord-

lieut. was persuaded to make a knight of Dr. M., and the newly-wedded pair set up for themselves in Dublin. Here she wrote the *O'Donnel.* The opening of the continent 1814 attracted the Morgans to Paris. Lady M. obtained admission into the highest society, corresponded with several celebrities, and wrote a work on *France.* which was eagerly received, and vehemently praised and censured by critics of different political opinions. In 1818, the Morgans went to Italy—the wife to sketch manners, scenery, and society, while Sir Charles was to contribute chapters on politics, science, and education. Lady M. was received with great hospitality by the Italian nobility, and the foreign visitors at Rome. Her *Italy* appeared 1821, and proved one of the most successful and remunerative of her works. In 1824, the Morgans came to London; and 1825, Lady M. began to keep a diary, which contains amusing bits of literary, fashionable, and political gossip. Her reputation as an authoress became obscured, but she continued to the end of her career to assume the twofold character of the lady of fashion and the woman of genius. She succeeded in obtaining from the whig government a pension of £300 a year, in acknowledgment of her literary merits, and partly, also, in recognition of the unjust and virulent attacks to which she had been subjected for having, in her earlier works, exposed the wrongs of her native country. She continued busy with her pen and her tongue to the last; and died leaving a great mass of correspondence of little intrinsic value, which, with a memoir, her autobiography, and diary, was edited by Hepworth Dixon and published 1862, 2 vols. Her descriptions of high life have much raciness and vigor, and her Irish sketches—the famous 'Jug-day,' in *The O'Briens and the O'Flahertys,* deserving special mention—are perhaps the best account of that rackety, humorous, sentimental existence which was at once the charm and bane of Ireland, and which has but lately passed away.

MORGANATIC, a. *mŏr'găn-ăt'ĭk* [Ger. *morgengabe,* morning-gift—from *morgen,* morning; *gabe,* gift, endowment: Latinized into *morganăticum:* another derivation is fr. Gothic *morgjan,* to curtail, limit]; called sometimes LEFT-HANDED MARRIAGE: among the feudatories of the Lombards and other branches of the Teutonic race, a name applied to the endowment of a wife, on the morning after marriage, with a limited portion of her husband's fortune; subsequently, a name applied to a marriage between a man of exalted rank and a woman of inferior position, she being, however, entitled only to the *morgengabe,* without partaking of his rank, or transmitting any rights in the inheritance of the husband to her children; left-handed, or irregular marriage. In present use the word designates a lower sort of matrimonial union, which, as a civil engagement, is completely binding, but fails to confer on the wife the title or estate of her husband, and on the children the full status of legitimacy or right of succession. The members of the Ger-

man princely houses have for centuries been in the practice of entering into marriages of this kind with their inferiors in rank. Out of this usage has gradually sprung a code of matrimonial law, by which the union of princes with persons of lower rank, in other than morganatic form, involves serious consequences, especially toward the lady. The penalty of death was actually enforced 1435 in the case of the beautiful and unfortunate Agnes Bernauer (q.v.). In the 16th and 17th c., a fashion began among German princes of taking a morganatic wife in addition to one who possessed the complete matrimonial status—Landgrave Philip of Hesse setting the example, with a very qualified disapprobation on the part of the leading Reformers. An energetic attempt was made in the first half of the 18th c. by Anton Ulrich, Duke of Saxe-Meiningen, to upset the established practice, and obtain for his morganatic wife the rank of duchess, and for her children the right of succession. In deference to the united opposition of the whole princedom of Germany, the emperor refused the duke's suit, declaring that there could be no marriage in princely families without 'Ebenbürtigkeit,' or equality of birth. In the present century, morganatic marriages are not on the decline among the German reigning houses—one of the best known and most remarkable instances being the union of the late Archduke John, the 'Reichsverweser' of 1848, with the daughter of the postmaster of Aussee, in Styria, afterward created Countess of Meran. Morganatic marriages are recognized not only among the princely families, but among the higher aristocracy of the empire; and in Prussia, even the 'Niedere Adel,' or inferior gentry, may contract unions of this kind.—A sort of left-handed or 'hand-fasted' marriage was recognized in early times in the Highlands of Scotland, and Ireland: the hand-fasted bride could be put away, and a fresh union formed, with the full status of matrimony. Unlike the case of German morganatic marriages, the issue were often accounted legitimate, even to the prejudice of the children of the more regular union that followed. The Royal Marriage Act, 12 Geo. III. c. 11, reduces to a position somewhat like that of morganatic unions every marriage in the royal family of Great Britain not previously approved by the sovereign under the great seal, provided the prince entering into it is under 25 years of age, and every such marriage of a prince above 25 which is disapproved by parliament.

MORGARTEN, *mor-gâr'tén:* mountain slope on the e. margin of Lake Egeri, canton of Zug, Switzerland. It has celebrity as the scene of a great victory won by the Swiss Forest Cantons over the Austrians, 1315, Nov. 15. The Swiss, who had command both of the narrow pass which wound between Morgarten Hill and the lake, and of the adjoining heights, numbered only 1,400 men, while the Austrians amounted to 15,000, and were led by Duke Leopold, brother of the German emperor. When the Austrian troops had fairly entered the pass, those of the

Swiss posted on the rocks above hurled down great masses of stone, which threw the enemy's cavalry into confusion, besides killing immense numbers of them. Their comrades who held the pass, taking advantage of the disorder, now charged the Austrians repeatedly, and utterly routed them. Only a few escaped, among whom was Duke Leopold.

MORGAY, n. *mŏr′gā* [W. *morgi*, the sea-dog]: the small spotted dog-fish; the hound-fish or bounce, found in the Mediterranean.

MORGHEN, *mor′gĕn*, **Raffaello Sanzio**, Cavaliere: famous engraver: 1758, June 19—1833, Apr. 8; b. Naples. His first instructor in the art of engraving was his father, who, according to some, was a German, or the son of a German. The indications of talent that M. gave were such as to induce his father to place him under Volpato at Rome. His progress then became very marked. Raphael's celebrated figures in the Vatican, of *Poetry* and *Theology* were engraved by him 1781; and he afterward produced a succession of engravings of a very high class from many of the master-pieces of art; e.g. his prints from Raphael's *Madonna della Seggiola;* the *Madonna del Sacco*, by Andrea del Sarto; the *Transfiguration*, by Raphael; the *Duke of Moncado*, by Van Dyck; and by his burin, Da Vinci's *Last Supper*, notwithstanding its decay, has been rendered with such consummate skill, as to lessen the regret felt for the evanescent condition of the original work. He accepted an invitation from the Grand Duke to reside at Florence, with a pension of 400 scudi, and a free residence, under condition of keeping a public school; and received marked attentions from the emperor Napoleon, to whom he dedicated his engraving from the *Transfiguration*. M. married Volpato's daughter 1781. He died at Florence. His Life, with a portrait, and a catalogue of his works, was published by his pupil, Niccolo Palmarino. From this work, it appears that he engraved 73 portraits, 47 religious, and 44 historical and mythological pieces, 24 views and landscapes, and 13 vignettes, crests, etc.—201 in all. The works of M. will always hold a prominent place in the history of engraving. About the middle of the 18th c., Strange had added a new feature to the art, by introducing, in a remarkable way, what is technically called by engravers 'color,' or the art of producing by management and variety of line, a texture or quality that compensates to some extent for the want of the actual colors in a picture. This influenced the style of Volpato, Cunego, and other Italian engravers of the period, who imitated, though with little success, the brilliancy produced by Strange. M., however, went far beyond these Italian engravers, for in his works he united much that was good in the engravings of Strange with a more correct and a purer style of drawing.

MORGUE, n. *mŏrg* [F. *morgue*] : place in cities or towns where the bodies of persons found dead are deposited temporarily, in order to be identified and claimed by their friends. The French word denoted the inner wicket of a prison, at which persons accused or condemned are kept for some time, so that the jailers and turnkeys may examine them at leisure, in order to recognize them when occasion requires. Hence the application of the word to a certain building (*La Morgue*) in the 'City' (*La Cité*) of Paris, at the extremity of the *Ile de la Cité*, just behind the cathedral of Notre Dame, where the dead bodies of persons unknown, found either in the river (Seine) or in the streets, are exposed to public view for three days. The corpses are put under a glass case, on a sloping slab of black marble. When a corpse is recognized, it is handed over to the relatives or friends of the deceased, on payment of costs and dues—otherwise, it is interred at the expense of the city. The number of bodies yearly exposed in the Paris *Morgue* is about 300, of which five-sixths are those of males.—There are morgues in the large American towns: established in Boston 1851, New York 1866, Brooklyn 1870, Chicago 1872, St. Louis 1874.

MORI: family name of the feudal princes who have long ruled a portion of Japan. In the 15th and 16th c. the M. had control of 11 provinces, but afterward their power was reduced and their dominion was limited to the two provinces of Suwo and Nagato (or Choshiu). Among their duties was the guardianship of the Straits of Shimonoseki. The fiefs were held by three cadet families. The Dutch early established schools in Nagato, and from this province many native students were sent to Europe and America before the govt. adopted a liberal policy in regard to foreigners. In the revolution 1868, the M. and their retainers were actively engaged against the govt. The M. crest is formed of three balls over which is placed a transverse bar.

MORI (or MAURY), ARINORI: born about 1848, in the province of Satsuma, Japan. He was one of the first natives educated in England. After studying two years in London, he returned to Japan, entered the national legislature, and favored a progressive course. He was the leader of the movement to do away the ancient custom of a privileged class wearing two swords. He was the first minister ever sent by Japan to a foreign country, receiving appointment 1871 as *chargé d'affaires* at Washington, D. C. While here he made a careful study of American educational systems. In 1873 he returned to Japan; the following year he was married, and 1879 was appointed minister to Great Britain. He has prepared two books in English for the use of his countrymen, and has been a leader in efforts to secure religious liberty and elevate the condition of woman.

MORI'AH, MOUNT: see JERUSALEM.

MORIBUND, a. *mŏr'ĭ-bŭnd* [L. *moribundus*, dying—from *mori*, to die: F. *moribond*]: in a state of dying.

MORIL: same as MOREL 2, which see.

MORILLON, n. *mŏr'ĭl-ŏn* [F.]: name among fowlers for the female or the immature male of the golden-eye duck. The name is applied also to a fine black grape: see MOREL 3.

MORINGA, n. *mō-rĭng'gă* [Mal. *murunggi*]: a strong-scented tree which yields the ben-nut and ben-oil, a native of Egypt and the E. Indies; the *Moringa pterygosper'ma* or horse-radish tree, ord. *Moringăcĕæ*.

Morion.

MORION, n. *mŏr'ĭ-ŭn* [F. *morion*—from Sp. *morrion*: It. *morione*, a kind of helmet—from Sp. *morra*, the crown of the head; *morro*, anything round]: iron or steel head-piece worn by a man-at-arms in the days when armor was used. It was a sort of helmet; but was distinguished from the helmets of the knights and esquires in having neither visor nor beaver. It was copied by the Spaniards from the Moors. Under the Norman laws, every yeoman between certain ages was bound to keep his M. ready for service.—M. is also a name given by lapidaries to rock-crystal of a brownish-black or charcoal-black tint.

MORISCO, n. *mō-rĭs'kō* [Sp. *morisco*—from *Moro*, a Moor]: anything Moorish; the Moorish language; moresque; a dance. MORIS'COES, n. plu. *-kōz*, a name given to the Moors who remained in Spain after the taking of Granada, 1492: see MOORS.

MORISON, *mŏr'ĭ-son*, ROBERT, M.D.: botanist; b. Aberdeen, Scotland; d. 1683. Having borne arms as a royalist in the civil wars, he retired to France about 1650, and became superintendent of the garden formed at Blois by Gaston, Duke of Orleans. After the Restoration, he was appointed by Charles II. one of his physicians and 'botanist royal,' and became prof. of botany at Oxford. His great work is *Plantarum Historia Universalis Oxoniensis* (2 vols. 1676–99).

MORISO'NIANISM: popular name for the distinctive tenets of the Evangelical Union (q.v.), Scotland, but never accepted by that religious body. The system of doctrine is fully enunciated in an authoritative document entitled *Doctrinal Declaration*, issued by the Evangelical Union Conference of 1858—not as a fixed or authoritative creed, but merely as a testimony to their distinctive faith. Being a recoil from the dominant Calvinism of Scotland, it is of Arminian type, but without any latitudinarian savor. The charge of Pelagianism often urged against it is indignantly repudiated by Evangelical Unionists, and, with reference to some modern aspects of Calvinism, is by them spiritedly retorted. It is a form of doctrine, in fact, which very nearly corresponds to the type of Evangelical Arminianism among the British and Amer. Wesleyans, and the Cumberland Presbyterians

in the United States. Like that, it originated in an element of revival; and now, after the lapse of a generation, these same tenets are largely insisted on by revival preachers of the orthodox bodies at the present day. This coincidence is explained by the need, felt in all efforts to bring men to religious decision, to give prominence to the universalities of gospel grace, the duty of immediate yielding to Christ in faith, and the importance of peace with God as a subjective condition of the Christian life. It was these, and especially the doctrine that Christ died as an atonement in the plenary sense for all men—"taking away the sin of the world"—which led to the separation, 1841, of the Rev. James Morison of Kilmarnock (now Dr. Morison of Glasgow) from the United Secession Church, and of three other ministers at subsequent synods, and to the formation by them of the Evangelical Union 1843, May. A theological acad. was at the same time instituted, presided over by Dr. Morison, at which 20 to 30 students annually receive training for the ministry. Many of these have gone to England, and some have attained good positions among the Congregationalists there. The Evangelical Union now embraces about 90 ministers and churches, all congregational in polity, though many have ruling elders. In brief, the most distinctive doctrine of Evangelical Unionists is that which they prominently exhibit as the three great universalities of gospel grace—namely, the Divine Father loves all, the Divine Saviour died for all, the Divine Spirit strives for the salvation of all. Believing in the entire freedom of the human will, they hold predestination to be conditional. On such doctrines as the Trinity, Atonement, Justification, and the like, they symbolize with other bodies known as Evangelical.

MORLAIX, *mōr-lā':* seaport of France, dept. of Finisterre, 45 m. n.n.e. of Quimper. Vessels of 400 tons can reach the quays of the town. Pop. (1881) 13,788.

MORLING, n. *mŏr'lĭng*, or **MORTLING**, n. *mŏrt'lĭng* [F. *mort;* L. *mortuus*, dead; and dim. termination, *ling*]: wool plucked from a dead sheep.

MORMONS, n. *mŏr′mŏnz*, or, as they call themselves, THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS: religious sect, founded by Joseph Smith, 1830, Apr. 6, in Fayette, Seneca co., N. Y., and having their headquarters for many years in Salt Lake City, Utah. MOR′MONITE, *-īt*, or MOR′MON, n. follower of Joseph Smith, and believer in his mission and in the communications of the so-called angel Moroni, son of *Mormon*. MOR′MONISM, n. *-ĭzm*, doctrines and practices of the Mormons.—*Mormons* are so named from the 'Book of *Mormon*,' whose plates were asserted to have been found in N. Y. by Joseph Smith, to whom their place of concealment was revealed and their contents interpreted by a so-called angel named Moroni, son of Mormon, who was the last great prophet in ancient America—Moroni having been dead about 1,400 years. According to Smith's etymology, *Mormon* is from 'Reformed Egyptian' *mon*, and English *more*, and means more good.

JOSEPH SMITH (1805, Dec. 23—1844, June 27) was born in Sharon, Windsor co., Vt.; son of a farmer. His parents were ignorant and of low repute. When he had reached the age of ten, they removed to Palmyra (now in Wayne co.), N. Y.; and four years later to Manchester, about six m. distant. The reputation of the family is said to have been of the worst kind; we are told that they avoided honest labor, were intemperate, untruthful, and suspected of sheep-stealing and other offenses. These accusations are generally denied by M., but Smith himself partly admitted them, affirming that he 'had never done anything so bad as was reported of King David, the man according to God's own heart.' Nevertheless, a rude sensual religiosity appears to have been mixed with his more carnal conduct. There is the most satisfactory evidence—that of his enemies—to show that from an early period he was regarded as a visionary and a fanatic. This fact is important as a clue to his *real* character, and an explanation of his otherwise unaccountable tenacity of purpose and heroism in the midst of fierce persecution. A *mere* impostor—i.e., a person who did not, in some sense or other, partly believe in his own mission, but who, on the contrary, felt that he was simply the liar and cheat that people called him—would have broken down under such a tempest of opposition and hate as Smith's preaching excited. Smith must have been, at least in part, honest in his delusion. In Wayne co., N. Y., a few years after the Smith family removed thither, an unusual religious excitement was prevalent, which affected various members of the ignorant household, so far at least as to turn their thoughts to great and mysterious themes. 'When about fourteen years of age,' Smith says, 'I began to reflect upon the importance of being prepared for a future state.' He then describes how he went from one religious denomination to another, but could find nothing satisfactory—nothing but 'a great clash in religious sentiment.' Then he began to withdraw into secret places, to spend hours

in prayer and meditation, and to receive angelic visits. The second of these happened on the evening of 1823, Sep. 21, when it seemed as though the house was filled with 'consuming fire.' In a moment, a 'personage' stood before him, 'with a countenance like lightning,' and 'visible to the extremities of the body,' who 'proclaimed himself an angel of God.' He informed Smith of various important particulars, as, 'that his sins were forgiven, and his prayers heard; that the covenant which God made with ancient Israel was at hand to be fulfilled; that the preparatory work for the second coming of the Messiah was speedily to commence; that the time was at hand for the gospel to be preached in its power and fulness to all the nations; and that Smith was chosen to be an instrument in the hands of God, to bring about some of his purposes in this glorious dispensation.' Besides all this, the angel gave him, by way of appendix, 'a brief sketch of the origin, progress, civilization, laws, and governments' of the aboriginal inhabitants of America—'of their righteousness and iniquity; and the blessings of God being finally withdrawn from them.' He was also informed where some golden plates were deposited, containing an abridgment of the records of the ancient prophets that had existed on the American continent. The angel appeared to Smith thrice that night, and afterward in many visits. He told him where the records were deposited, 'on the west side of a hill, not far from the top, about four miles from Palmyra, in the county of Ontario, and near the mail-road, which leads thence to the little town of Manchester.' He advised him to go and view them, which Smith did; but the prophet was not yet holy enough to obtain possession of them.

At length, after due disciplinary probation, as the recital proceeds, the angel of the Lord, 1827, Sep. 22, placed in Smith's hands the wonderful records, engraven on plates nearly eight inches long by seven wide, a little thinner than ordinary tin, and bound together by three rings running through the whole. The volume was altogether about six inches in thickness, a part of which was sealed. The characters, letters, or hieroglyphics on the unsealed part were small and beautifully engraved. They represented an unknown language called the 'Reformed Egyptian.' With the records was found a curious instrument, called by Smith 'Urim and Thummim,' consisting of two transparent stones, set in the rim on a bow fastened to a breastplate. By means of these stone-spectacles, God enabled him to understand and translate the ancient records into such humble English as the 'prophet' (who had received almost no school-education, and could read only with difficulty) was master of. The records contain the primitive history of America, from its first settlement by a colony—descendants of Jared, who lived soon after the flood of Noah—that came from the Tower of Babel, at the confusion of languages, till the beginning of the 5th c. of the Christian

era. These primitive colonists were a wicked and bloody race, and finally mutually destroyed each other, millions being slaughtered in the final conflicts. Silence again settled down upon America. But a new race came directly from Jerusalem about B.C. 600, during the reign of King Zedekiah: these consisted of Lehi and his wife; his four sons, Laman, Lemuel, Sam, and Nephi, together with their four wives; two 'sons of Ishmael,' and their two wives; Zoram, a servant, and his wife—in all, 16 men and women. They are supposed to have landed on the coast of Chili. After the death of Lehi, quarrels broke out among the brothers. The Lord had appointed Nephi ruler of the new race of colonists, but his elder brothers would not hear of it; as a punishment for which they and all their posterity were condemned to have dark skins, and 'to become an idle people, full of mischief and subtlety, which did seek in the wilderness for beasts of prey.' They are the ancestors of the American Indians, who are thus, according to Smith's records, simply *bad* Hebrews. The descendants both of Nephi and of his rebellious brothers increased and multiplied, but were almost continually at war with each other. In the time of Nephi the second, an awful earthquake announced the Crucifixion. Three days afterward, Christ himself appeared out of heaven; showed the Nephites his wounded side and the print of the nails; instructed them for forty days in the truths of Christianity; healed the sick, blessed children, administered the Lord's Supper, and planted churches, with apostles, prophets, pastors, teachers, and evangelists—the same order, the same priesthood, the same ordinances, gifts, powers, and blessing, as on the eastern continent. Hostilities, however, between the Nephites and their dark-skinned brethren continued to rage as fiercely as ever; gradually the purity of their faith declined; and finally, A.D. 384, a decisive conflict took place about four m. from Palmyra, at the hill Cumorah, in the former Ontario co. and present Wayne co., western N. Y., where the Christian Nephites were nearly annihilated: miracles thenceforth ceased, and unbelief gradually became supreme. Shortly before this, however, a prophet called MORMON, who with his son Moroni had been among the few that had escaped the slaughter, had been commissioned of God to write an abridgment of all their prophecies, histories, etc., and to hide it in the earth, till God should see fit to bring it forth, and to 'unite it with the Bible for the accomplishment of his purposes in the last days.' This is the famous BOOK OF MORMON, believed by the followers of Smith to be of equal authority with the Jewish and Christian Scriptures, and to form an indispensable supplement to them, containing God's revelations to the new, as the others to the old, world. In A.D. 420, by Moroni, who soon afterward died, these records, whose substance had been written by successive kings and priests, were finally sealed up where Smith found them.

The way in which Smith translated was as follows: he

sat behind a blanket hung across the room to keep the sacred records from profane eyes, and read off, by the help of his 'Urim and Thummim,' to one Oliver Cowdery, who wrote down what the invisible 'prophet' gave as a translation—Smith himself being, as he confesses, but a 'poor writer.' A farmer, of the name of Martin Harris, supplied Smith with necessary funds for printing the work. The *Book of Mormon* finally appeared before the world 1830, with the names of Oliver Cowdery, Martin Harris, and David Whitmer appended to a statement, that an angel of God had come down from heaven and shown them the original plates: a statement which a few years later was declared false by all three witnesses. This dubious testimony was immediately followed by that of eight other witnesses, among whom were Smith's own father and two brothers (suspected, however, it must not be forgotten, of being addicted to sheep-stealing and other nefarious practices), who affirmed that 'Joseph Smith, junior,' had shown them the mysterious plates. These, however, are the only persons who have been so privileged. No other human being has ever seen them. They have never been forthcoming, however loudly demanded; and of late years all knowledge of them has become traditional.

Attention was soon drawn to the strange work, and a controversy sprang up regarding its real authorship. Evidence was brought forward by the opponents of Smith to show that with the exception of certain illiterate and ungrammatical interpolations, bearing on religious matters, the so-called *Book of Mormon* was really borrowed or stolen nearly *verbatim* from a MS. historical romance written 1812 by a quondam clergyman, Solomon Spalding, a man of some gifts, but of unbalanced mind, who died 1816. The Mormons of course declare the whole story of Spalding's MS. romance a scandalous fabrication. While the death of those who could have testified to the facts prevents the evidence of Spalding's authorship from being absolutely conclusive, nothing has ever been shown disproving it. About 1829, Smith became acquainted with one Sidney Rigdon (b. Penn., about 1793), originally a 'Campbellite' preacher in Ohio, a man of some eloquence, and versed in the Scriptures. Rigdon was sometimes employed as compositor in a printing office; and into his hands Spalding's romance is supposed to have fallen and to have been given by him to his new associate—in whose soul there may have been (according to our theory of his character) some rude and gross religious notions and feelings which led him to devise the ungrammatical religious interpolations. This theory acquires probability from the fact, that these religious passages do not refer to old-world faiths and the practices of an ancient ritual, but to quite modern questions, such as are well known to have been rife in the villages of Western N. Y. about 1830. Calvinism, Universalism, Methodism, Millenarianism, Roman Catholicism, are discussed, if not in name, yet in reality.

Infant baptism is condemned; so, strange to say, are polygamy and freemasonry.

Undeterred, nevertheless, by exposure, ridicule, and hostility, Smith and his associates persevered in preaching their 'doctrine,' which was a new Americanized phase of millenarianism, only degraded below all that is ordinarily known by that name. They declared that the millennium was close at hand, that the Indians were soon to be converted, and that the New Jerusalem—the final gathering-place of the Saints—was to be somewhere in the heart of the American continent. The 'prophet's' house 'was frequently beset by mobs and evil-designing persons; several times he was shot at, and very narrowly escaped;' but his fearless courage continued to bring him disciples; and 1830, Apr. 6, the *Church of Jesus Christ of Latter-day Saints* was organized. Smith was fiercely attacked by the leaders and preachers of the other religious denominations, but he kept his ground stubbornly, argued moderately well, and when argument failed had recourse to a style of zealous prophetic asseveration, which is generally irresistible with weak and ignorant people. But animosity grew ferocious against the new sect; and 1831, Jan., Smith and his followers considered it prudent to remove to a distant part of the country. They established themselves at Kirtland, Ohio, which was to be the seat of the New Jerusalem. There they made immense progress. Their missionaries were full of zeal (none more so, however, than Smith himself), converts were made in great numbers, and churches were established in Ohio, Penn., N. Y., Ind., Ill., and other states. Still the eyes of the new sect turned westward—to the region of the great prairies, where they might be allowed to work out their system in peace and freedom. In the autumn of 1831, a colony was established in Jackson co., Mo., which a 'revelation' given to Smith assured the Saints was 'the land of promise and the place for the city of Zion.' Land was largely bought, preaching was vigorously carried on, a printing-press was established, a monthly periodical, *The Morning and Evening Star*, and a weekly newspaper, *The Upper Missouri Advertiser*, were started to propagate the doctrines of the new sect; everywhere was visible a spirit of industry, sobriety, order, and cleanliness. It is only fair to the M. to state these things. Account for it how we may, they were, in many important respects, morally, socially, and industrially, far in advance of their neighbors. When Smith returned to Kirtland, he set up a mill, a store, and a bank, and continued his propagandist labors with great success, but not without savage persecution; thus, on the night of 1832, Mar. 22, a mob of Methodists, Baptists, Disciples, and miscellaneous zealots, broke into the prophet's house, tore him from his wife's arms, hurried him into an adjoining meadow, and tarred and feathered him. Sidney Rigdon was similarly handled and rendered temporarily insane. Smith, however, undaunted by this brutal treatment, preached next day

with his 'flesh all scarified and defaced,' and proved the folly of persecution by baptizing three new converts in the afternoon. Meanwhile, the brethren in Missouri continued to prosper, but this very fact deepened the animosity toward them of all who were not Mormons. Whispers also began to be spread about their indulging in a community of wives. The rumor was not true, but it probably originated in Rigdon's theory of the 'spiritual wife,' which Smith at first denounced, but afterward accepted, and thereafter commenced 'sealing wives' to himself in some mysterious way that Gentiles could not fathom. This first step toward polygamy—a doctrine not yet 'revealed,' however (in fact, *contrary* to the 'revealed' doctrine on the subject), materially helped to inflame the hostility of the impulsive and unscrupulous backwoodsmen. Secret societies (according to Smith, composed 'of the basest of men') were formed to expel the M. from Missouri, their periodicals were stopped, their printing-press confiscated, their bishops tarred and feathered, and numberless other outrages were committed. Finally, the hapless 'Saints' were compelled to flee across the Missouri river, and men, women, and children had to encamp in the open wilderness on a winter night in 1833. They subsequently settled in Clay co., in the same state, where they remained more than three years. 1834, July, they were visited by the 'prophet' himself, accompanied by 100 persons, mostly young men, and nearly all priests, deacons, teachers, and officers of the church. During a brief residence of one week among them, he accomplished much in the way of vigorous organization; next year a further step was taken in the development of a hierarchy by the institution of a body of apostles—12 in number—who were sent out to preach the new doctrines among the Gentiles. One of these 12 was the famous Brigham Young, who had become a convert about the close of 1832, and had soon shown wonderful sagacity and force of character. He was ordered to go to New England, and made numerous converts even among the acute people of those parts. In 1837 Orson Hyde and Heber C. Kimball were dispatched as missionaries to England, where they received large accessions to their numbers, especially from the masses in the great manufacturing and commercial towns, Manchester, Liverpool, Leeds, Birmingham, Glasgow, and, above all, from the mining districts of s. Wales, where Mormonism, in some places, almost competed for popularity with Methodism itself. Since then, they have extended their strange evangelization to the E. Indies, Australia, the islands of the Pacific, Egypt, Palestine, Turkey, and almost every country on the continent of Europe.

About the close of 1837 or the beginning of 1838, Smith's bank at Kirtland stopped payment, and proceedings were taken against the prophet and others for swindling. Luckily, just at this moment, he received a 'revelation' to depart into Missouri, which he instantly

obeyed, with all the more alacrity that internal disorders had painfully manifested themselves in the new colony. These were at last healed; but the conflict between the Saints and the other Missourians became fiercer, more envenomed, more sanguinary than ever, assuming, in fact, almost the proportions of a civil war. The prophet and Rigdon were thrown into prison, and finally, toward the close of 1838, the whole body of Saints, about 15,000, quitted Missouri, and took refuge in Illinois. Here they obtained a grant of land in the vicinity of the little town of Commerce, a name which the M., in obedience to a 'revelation' given to Smith, changed to Nauvoo, or The City of Beauty. The country was a mere wilderness when the M. settled in it: it soon began to rejoice and blossom as the rose. Lieut. Gunnison (a most intelligent and impartial writer) is forced by facts to be eloquent in praise of Mormon industry, and gives an enchanting picture of the new colony. The legislature of Illinois granted a charter to Nauvoo; a body of Mormon militia was formed, under the name Nauvoo Legion, of which the prophet was appointed commander; he was also appointed mayor of the city, and was thus supreme in all matters civil and military, as well as religious. But the doctrine of 'sealing wives' once more roused the wrath of the neighborhood, and serious disturbances took place, the ultimate result of which was that the prophet and his brother Hyrum were thrown into prison at Carthage. After a short time, it began to be rumored that the governor of the state was desirous of letting the two Smiths escape, whereupon a band of 'roughs,' about 200 in number, broke into the jail, 1844, June 27, and shot them. It was assassination; for they were defenseless prisoners, and had been promised safe conduct to their trial by the state authorities. Disastrous as this termination of his career was to Smith himself, it was a most fortunate thing for the system which he founded. 'The blood of the martyrs is the seed of the church.' A halo of solemn and tender glory now encircles the memory of one who stood greatly in need of such spiritual transfiguration. Much evil-doing may be laid to Smith's charge, but it cannot be shown that he was a polygamist, in our sense of the word. Years after his death, Brigham Young produced a paper which he said was a copy of a 'revelation' made to Joseph at Nauvoo, commanding him to take as many wives as God should give him. But it was not till 1852, Aug. 29, at a public meeting in Salt Lake City, that the 'revelation' was formally received.

Smith's death created great agitation and confusion among his followers. Sidney Rigdon and others aspired to succeed him, but the Council of the Twelve Apostles unanimously elected Brigham Young (q.v.), and events showed the wisdom of their choice. The legislature of Illinois having revoked, 1845, the charter given to the city of Nauvoo, and the hostility of their neighbors not having in the least abated, the Saints resolved to emigrate far beyond the boundaries of civilization, and to

seek a new home amid the solitudes of the Rocky Mountains, where they might pass their lives in unmolested peace. Explorers were sent out to examine the country, and brought back a favorable report of the Great Salt Lake valley. See GREAT SALT LAKE: SALT LAKE CITY: UTAH. 1846, Feb., the first emigrants crossed the ice-bound Mississippi, settled for a year in Iowa, and then marched, under strictest discipline, across the great wildernesses. Agricultural operations were commenced almost the instant they arrived at the shores of the Salt Lake. The cheerfulness, intelligence, and zeal exhibited on all sides were admirable. The world has never seen swifter, more active, more glad-hearted colonists than these singular 'Saints.' It would be unfair to shut our eyes to such facts: in judging Mormonism, we must keep them constantly in view, to prevent us from forming mere abstract and theoretical decisions, which will not in the least affect the future of Mormonism. Brigham Young arrived in the valley 1847, July 24, and the main body of the M. in the autumn of 1848. The Salt Lake City was soon founded, an emigration fund established, and settlers poured in from all parts of Europe and America; and perhaps a more evenly distributed amount of physical comfort was enjoyed here than in any other part of the world. In 1850 the govt. of the United States admitted the region occupied by the M. into the Union, as the territory of UTAH; and Brigham Young was appointed gov. by Pres. Fillmore. District judges also were appointed by the federal govt., but these were met with great suspicion and mistrust by the Saints, who finally drove them out of the country 1851. Brigham Young was then suspended from his office of gov., and Col. Steptoe of the U. S. army was appointed his successor. He arrived in Utah 1854, but found it prudent after some time to withdraw from the country. During the next two years, the collisions between the U. S. officers and the Saints became more and more frequent, and in the spring of 1856 all the U. S. officials were forced to flee from the territory. A new gov., Alfred Cumming, was appointed by the authorities at Washington 1857, also a new supt. of Indian affairs; besides, a force of 2,500 men was sent to enforce obedience to the laws of the United States. The Saints attacked their supply-trains, and compelled the enemy to winter at some distance from the Salt Lake. In the early part of the next year, negotiations were entered into between the contending parties; the M. submitted to the federal authority, and the federal troops were allowed to encamp on the w. side of Salt Lake, about 40 m. from Salt Lake City, where they remained till 1860, when they withdrew. After the civil war, the United States seemed determined to insist on its authority. A federal gov. was again appointed, and polygamy was declared 1871 to be a criminal practice contrary to U. S. laws; Brigham Young was even arrested. One of the most notable events in the recent history of the M. took place in the

year of Brigham Young's death (1877). John D. Lee, a Mormon bishop, was brought to trial, convicted, sentenced, and hanged for his share in an atrocious crime till then uninvestigated. In 1857 a party of M. and Indians, under Lee's command, assaulted a train of 150 non-Mormon emigrants at Mountain Meadows, near Utah, and massacred every soul of them. In 1882 congress opened its long-delayed campaign against the M., and, by a majority of nearly four to one, passed a bill prohibiting polygamy within the Union.

By act of congress 1862, July 1, it had been provided that every person having a husband or wife living, who at any place within the United States jurisdiction marries another, is guilty of bigamy, and is punishable by a fine of not more than $500, and imprisonment of not more than five years. The 'Edmunds Law,' 1882, Mar. 22, continued the provisions of the previous legislation, provided the same punishment for any man who at one time or during one day married more than one woman, imposed a fine of not more than $300, or imprisonment for not more than six months, or both, on any man cohabiting with more than one woman, and declared that no polygamist, bigamist, man cohabiting with more than one woman, or woman living with more than one man, in any place within the United States jurisdiction, should be eligible to vote or hold office under the govt. Still more extended legislation being needed, the Edmunds Anti-Polygamy Bill was presented to congress 1886, and with some slight modifications passed the house 1887, Feb. 17, and the senate Feb. 18. Among the provisions of this law are the following: In court proceedings for polygamy, bigamy, etc., the lawful husband or wife of the accused shall be considered a competent witness, and may be called, but shall not be compelled to testify without the consent of the accused. An attachment may be issued without a previous subpœna when there is reason to suppose that the latter will not secure the attendance of a witness in trials for polygamy, etc. Adultery shall be punished by imprisonment in the penitentiary not more than three years. Marriage or cohabitation between persons within, but not including, the fourth degree of consanguinity shall be considered incestuous, and punished by imprisonment 3 to 15 years. Prosecutions for adultery may be begun the same as for any other cause, the limitations of the territorial laws being annulled. For every ceremony of marriage a certificate shall be filled out, promptly recorded at the office of the court having probate powers in the county or district, and these records shall be constantly open for inspection. Territorial laws recognizing illegitimate children as heirs are annulled, and the powers of probate judges are curtailed. The atty.gen. of the United States is required to commence proceedings to forfeit and escheat property held by corporations in violation of the act of congress 1862 to punish and prevent polygamy, and of sec. 1890 Revised Statutes of the United States, and

turn such property over to the sec. of the interior, who shall apply the same to the benefit of the common schools in the territory in which it is taken, except that no buildings or grounds used solely for religious purposes shall be forfeited. The Perpetual Emigrating Fund Company is to be dissolved, its affairs settled, and the property invested and used for the benefit of the common schools of the territory. The acts of the legislature of Utah, and of the so-called state of Deseret, incorporating the Church of Jesus Christ of Latter-day Saints are annulled, and the affairs of the corporation are required to be wound up in a legal manner, under direction of the atty.gen. of the United States. Women shall not be allowed to vote in the territory of Utah; the election districts must be abolished and a new apportionment as a basis for representation be made. As a condition to the right to vote, each person shall make oath that he will support the constitution of the United States, obey the laws, especially the act of congress 1882 respecting bigamy, and without taking this oath no person shall be capable of serving on jury or be eligible for office. The law further decrees the abolition of the office of territorial supt. of district schools, and the appointment, by the supreme court of the territory, of a commissioner to have oversight of schools. The laws by which the militia of the territory of Utah and the Nauvoo Legion were organized are annulled, and an organization of militia under United States laws is effected. In accordance with the provisions of this act, the United States authorities commenced proceedings to escheat to the govt. the property held by the M. which was not exempted by the provisions of the act itself. The M. opposed the action on the ground that the law was unconstitutional, but lost their case before the supreme court of Utah 1888, Oct. 8, the court declaring that the corporation known as the Mormon Church was legally dissolved. The M. appealed to the supreme court of the United States, which, 1890, May 19, affirmed the judgment of the lower courts. Applications for the rights of citizenship by parties who had taken the Endowment-House oath of the Mormon Church were refused by the Utah supreme court 1889, Nov. 30. The legislature of Arizona passed an act 1885 designed to suppress polygamy more effectually than the existing laws had done, but it was soon afterward repealed. The legislature of Idaho passed 1889 a bill which disfranchised nearly all the M. in the territory. The case was carried to the territorial supreme court, which affirmed the validity of the act. An appeal was then taken to the United States supreme court, where 1890, May, the case was pending.

At the 60th annual conference of the M. Church, 1890, Apr. 4, its pres. announced that the day of revelations had passed. He has emphatically stated that his people will accept the situation, and that in future the laws of the United States respecting polygamy will be obeyed. —Statistics of the Mormon Church 1889: apostles, 12;

patriarchs 70; high-priests 3,919; elders 11,805; priests 2,069; teachers 2,292; deacons 11,610; families 81,899; total membership, including officers, 119,915; children under eight years of age 49,303.

Hierarchical Organization.—Mormonism is a theocracy; its priesthood, who rule in matters temporal and ecclesiastical, are divided into various orders. The highest is the *First Presidency*, composed of three persons, who are the successors of the apostles Peter, James, and John in the Church of the New Testament. Of these, even Brigham Young was nominally only *primus inter pares*. The first presidency is elected by the body of the church, and possesses supreme authority. The second office in point of dignity is that of *Patriarch*, whose chief duty is to administer blessings. Then follows the council of 'The Twelve,' whose functions are of great practical importance. They ordain all other officers, elders, priests, teachers, and deacons; they baptize, administer the communion, and take the lead in all meetings. Next come the *Seventies* (of whom there are many). They are under the direction of the 'Twelve Apostles,' and are the great propagandists, missionaries, and preachers of the body. The fifth order is that of *High-Priests*, composed usually of men advanced in years. Their duty is to officiate in all the offices of the church when there are no higher authorities present. After these come the *Bishops*, 'overseers' of the church chiefly in secular matters, attending to the registration of births, marriages, and deaths, the support of 'literary concerns' (such as newspapers and magazines), house-visiting, the settlement of private grievances, and the care of the poor. Indeed, according to Dixon (*New America*, I. 260), 'a bishop's main function is to see that no man in his ward, in his county, is in want of food and raiment.' The duties of the *Elders* are not very precise; they are charged with the conduct of meetings, and exercise a general surveillance over the *Priests*, who correspond to the 'fixed ministry' or stated preachers of other sects—i.e., they preach, exhort, and expound the Scriptures. The lowest orders are the *Teachers* and *Deacons;* the former are simply assistants to the priests, elders, and bishops, and act as catechists; the latter are church-collectors, treasurers, etc.—The whole priesthood is divided into two classes, the Melchizedecian and the Aaronic. To the first belong the offices of apostle, seventy, patriarch, high-priest, and elder; to the second, those of bishop, priest, teacher, and deacon. The Aaronic priesthood can be held only by 'literal descendants of Aaron,' who are pointed out by special revelation

Doctrine.—The M. are almost incredibly and blasphemously materialistic in their doctrines. Their Godhead is formed on Buddhistic principles. While professing to believe in the Trinity, they explain that God was once a man, who has, however, so advanced in intelligence and power that he may now be called (comparatively speak-

ing) perfect, infinite, etc., but that he has still the form and figure of a man; he has even 'legs,' as is evident (says Pratt, 'the leading scholar of the Mormon Church') from his appearance to Abraham; though he has this advantage over his creature, that 'he can move up or down through the air without using them.' Christ is the offspring of the 'material' union, on the plains of Palestine, of God and the Virgin Mary—the latter being duly married after betrothal by the angel Gabriel. Yet Christ is believed to have had a previous existence, to have even made the universe out of 'unformed chaotic matter as old as God,' and worship of him is enjoined as Lord of all. The Paraclete or Holy Spirit is vaguely described, but also is material. It appears, however, that there is an older Trinity, that of 'Elohim, Jehovah, and Michael, which is Adam.' Adam, again, is declared to be the 'god' of Jesus Christ; Jesus Christ, the god of Joseph Smith; and Joseph Smith is now the god of this generation—but the whole complex of so-called theology is a mass of unintelligible rubbish. The human intellect probably never sank into more abysmal nonsense; all that can be definitely set before the mind is that M. believe that, by faith, obedience, holiness, any man may rise to become a deity, and acquire the power of making, peopling, and ruling a 'world' forever. The *second* article of the Mormon creed affirms that 'men will be punished for their own sins, and *not* for Adam's transgressions;' the *third* article states that 'through the atonement of Christ, all mankind may be saved by obedience to the laws and ordinances of the gospel.' The *fourth* article affirms these 'ordinances' to be: 1. Faith in the Lord Jesus. 2. Repentance. 3. Baptism. 4. Imposition of hands by the gift of the Holy Spirit. 5. The Lord's Supper, administered kneeling. The Saints, who are much averse to strong drinks, use water instead of wine in the communion, which is observed every week. The *fifth* article declares that 'men must be called to the work of God by inspiration;' the *sixth*, that the same organization must now exist that existed in the primitive church; the *seventh*, that miraculous gifts—'discerning of spirits, prophecy, revelations, visions, healing, tongues,' etc.—have not ceased. The 'discerning of spirits' led Smith, or rather his friends, Rigdon, Pratt, etc., who are understood to be the real authors of the metaphysics, into a variety of curious speculations. They believe that the soul of man was not created, but 'coexisted equal with God.' The *eighth* article is decidedly liberal; it expresses a belief that the word of God is recorded not only in the Bible and the Book of Mormon, but in 'all other good books.' As for some supposed contradictions in the Bible, they are admitted; but it is alleged that they are 'corruptions,' and that they can be removed by any prophet's inspired explanations. On the other hand, the statement that the Saints pretend to have a new and inspired translation of the Bible was denied by Brigham Young in a conversation

with Dixon (*New America*, I. 216–217). The *ninth* article expresses a belief in all that God has revealed, is revealing, or will yet reveal. The *tenth* affirms the literal gathering of Israel, the restoration of the ten tribes (the 'American Indians,' who are, in consequence, treated with considerable humanity by the Saints; the negro, on the other hand, being excluded from the Mormon Church, as a descendant of Cain), the establishment of the New Zion on the western continent, the millennial reign of Christ on earth, and the transformation of earth into a paradise. The *eleventh* article maintains 'the literal resurrection of the body.' The *twelfth* article asserts the absolute liberty of private judgment in matters of religion; the *thirteenth* declares it the duty of the Saints and all others to be 'subject to the powers that be, whether monarchical or republican.' The *fourteenth* and last is worthy of being universally accepted: 'We believe in being honest, true, chaste, temperate, benevolent, virtuous, and upright; and in doing good to all men;' also that 'an idle or lazy person cannot be a Christian, neither have salvation.'

The great social peculiarity of the sect is their practice of polygamy. It was not so, however, at first. Rigdon, Kimball, Pratt, Hyde, and Young are its true originators; Emma, wife and widow of the prophet Smith, stoutly denied that her husband ever had any wife but herself. Young's 'revelation' she declared to be a fraud, and in consequence she withdrew to Nauvoo. Her four sons followed her, and have now founded a monogamic Mormon community, called the *Josephites*, but naming themselves the Reorganized Church of Jesus Christ of Latter-day Saints. These consider that the church led by Brigham Young was simply a faction of the original church, and that it went into apostasy. Another branch of the M. (who altogether may number 200,000 souls) has recently settled at Independence, Mo., proposed site of the 'New Jerusalem.' Meanwhile, at Salt Lake City, the practice of polygamy has been encouraged on the ground that the rank and dignity of the Saints is proportioned to the number of their wives and children. A defense of the practice is also set up on moral grounds. M. assert that their community is free of the horrible sin and viciousness that prevail elsewhere; fornication and adultery, with their guilty passions and abandoned conduct, are declared to be unknown; their wives are asserted (Burton and others are very strong on this point) to be happy, virtuous, and healthy, and they challenge comparison in regard to their domestic and social purity and felicity with any monogamic community in the world. Dixon strongly recognizes their virtues. Mr. Phil. Robinson, in his *Saints and Sinners* (1883), gives a favorable account of the M. in all but their polygamy, which he detests. In Utah, the 'Gentiles,' or non-Mormons, are but 17 per cent. of the population, but contribute most of the vice and crime.

Of 120,000 M. in Utah, only 12,000 are bigamists or polygamists.

See *Book of Mormon* (1830); *Book of Doctrine and Covenants*, consisting of select 'revelations' given to Smith (1832); *The Pearl of Great Price*, also by Smith (first published Liverp. 1851); *Journal of Discourses*, by Brigham Young and others (1854 *et seq.*); *The Exploration and Survey of the Great Salt Lake*, by Capt. Stansbury (1849); *The Mormons, or Latter-day Saints*, by Lieut. Gunnison of the U. S. Topographical Engineers (1852); *The Mormons*, by Col. T. L. Kane (1850); *The Mormons, or Latter-day Saints, with Memoirs of the Life of Joseph Smith; Voyage au Pays des Mormons*, par Jules Remy (1860); *The City of the Saints*, by R. F. Burton (1861); Dixon's *New America* (1867); Bush, *Geschichte der Mormonen* (Leipz. 1870); Mrs. Stenhouse (a convert from Mormonism), *An Englishwoman in Utah* (1880).

MORMYRIDÆ, *mawr-mĭr′ĭ-dē:* family of malacopterous fishes, allied to the *Esocidæ*, or Pike family; having long compressed bodies, and a slender tail swelling out at the origin of the caudal fin. The skin of the head is naked, enveloping the gill-covers and gill-rays, leaving only a slit for gill-opening. The mouth is small. All the known species inhabit the rivers of Africa. The SHARP-NOSED MORMYRUS (*Mormyrus oxyrhynchus*) is regarded as one of the best fishes of the Nile: it is caught by lines baited with worms. The M. are nocturnal fishes. They are sometimes represented on Egyptian monuments, and seem to have been held sacred by the ancient Egyptians. The modern Egyptian name is *Mizdeh*. Some species have electric organs.

MORN, n. *mŏrn* [AS. and Ger. *morgen*, morn, morrow: Icel. *morgun* (see MORNING)]: the first part of the day.

MORNING, n. *mŏrn'ing* [Goth. *maurgins;* Ger. and AS. *morgen;* Icel. *morgun*, morn, morrow: Wai. *murgu*, gray; *murgitu*, twilight]: the first part of the day; the period from 12 at night to noon; in *popular phrase*, the time between dawn and the middle of the forenoon; in *fashionable life*, all the part of the day before dinner; the first or early part, as of life: ADJ. done, occurring, or being in the morning. MORNING STAR, any planet seen shining in the morning—generally the planet Venus when she rises before the sun. MORNING-GOWN, a loose robe worn in the morning before being dressed.

MORNY, *mor-nē'*, CHARLES AUGUSTE LOUIS JOSEPH, Duc de: French statesman, of the second empire: 1811, Oct. 20—1865, May; b. Paris; natural son of Hortense Beauharnais and of the Comte de Flahaut; half-brother of Emperor Louis Napoleon. The biographical dictionaries published under imperial censorship are silent regarding his parentage. The Comte de Morny, French nobleman resident in Mauritius, received 800,000 francs to adopt him as his son; but he was educated by his 'grandmother,' Madame de Flahaut; and Queen Hortense left him at her death, 1837, an annuity of 40,000 francs. M. entered the army 1832 as a sub-lieut., and is said, though scarcely credibly, to have shown at that early period a predilection for metaphysics and theology. He served with the army in Algeria; but soon abandoned a military life, and 1838 made his début in the world of fashion as a leader in dress and manners, and in the world of industry as a great manufacturer of beet-root sugar. Ever after that time, he was in all sorts of commercial and financial speculations—railway companies, canal companies, French and foreign mining companies, credit societies, industrial enterprises, etc. Chosen a deputy 1842, he quickly attained a prominent position by his aptitude for dealing with financial questions; but events showed that he had the spirit of an adventurer, and his recklessness at times excited a suspicion of enormous swindling somewhere. After the revolution of 1848, he became attached to the cause of his half-brother, and was leader of the subtle and treasonable policy of the Elysée. He was prominent in the *coup-d'état*. His rôle was to exhibit *sangfroid*, give sumptuous entertainments, and throw the republican leaders off their guard. Nor did he fail of success. He passed the evening of Dec. 1 at the *Opéra Comique*, and yet, by six o'clock next morning the deed was done, and M. was minister of the interior. In 1854 he became pres. of the *Corps Législatif*, and was ambassador to Russia 1856-7, where he married the rich and handsome Princess Trubetskoi. The result of his Russian mission was the establishment of intimate political relations between the two governments, and a commercial treaty advantageous to both countries. M. was unscrupulous and extravagant, and frightfully addicted to sensual excess.

MOROCCO, n. *mō-rŏk'ō* [first prepared in *Morocco*, in Africa]: a fine kind of grained leather prepared from goat-skin, and often from sheep-skin: see LEATHER.

MOROCCO, *mō-rŏk'ō*, or MAROCCO, *mâ-rŏk'ō*, called by the natives *Maghrib-el-Aksa*, 'the extreme west,' or briefly *Maghrib:* sultanate in n.w. Africa; bounded e. by Algeria, n. and w. by the Mediterranean Sea and Atlantic Ocean, s. by a line from Cape Nun (lat. 28° 45′ 43″ n.), easterly through the Sahara to the Algerian frontier in long. 2° e. Less is known about M. than any other n. African country. At the present day, M. includes the three former kingdoms of Maghrib, Fez, and Tafilelet; area variously estimated (as the southward limit is not definite) 260,000 to 305,000 sq. m.; pop. likewise variously estimated 2,500,000 to 8,000,000. Probably both area and pop. are nearer the larger than the smaller estimates. The country is generally stated to be mountainous, the Atlas (q.v.) range traversing it in several parallel chains s.w. to n.e., and sending out numerous spurs to both the coast-country and the desert. There are, however, many level tracts throughout M., especially at its w. and e. extremities, and on the borders of the desert. The central range of the Atlas forms the water-shed separating the streams which flow into the Atlantic and Mediterranean from those which run southward to the desert. The former rivers have the shorter course and less volume, but they are perennial; while the latter become dry in summer, and even when running are lost in the sands of the Sahara. The chief rivers are the Muluya, with its tributary the Sharef, which drains the n.e. of the country and falls into the Mediterranean after a course of 400 m.; the Kos, Oom-a-beg, Bu-Regreb, Tensift, Suse, and Assaker, the last forming for part of its course the s. boundary of M., drain the central and w. districts, and fall into the Atlantic: the Draha, Fileli, Ziz, and Gir, irrigate the dry plains of Tafilelet, and the first-mentioned then empties itself into the Atlantic Ocean. The subsequent courses of the other three rivers are not yet ascertained.

The *climate* between the central range of Atlas and the sea is temperate, the thermometer seldom falling lower than 40° F., or rising above 90° F., owing partly to the regulating influence of the sea-breeze, and the shelter afforded by the mountains from the scorching winds of the desert; but in the s. e. districts, extremes of heat and cold are said to prevail, and rain is there unknown.

Among the chief *products* of the country are wheat, barley, rice, maize, durra, and sugar-cane; and among fruits, the fig, pomegranate, lemon, orange, and date are common; while cotton, tobacco, hemp, etc., are largely produced both for home use and for export. M. is supposed to be rich in mineral treasures; plentiful supplies of copper are obtained at Teseleght, near the source of the Assaker, and gold and silver occur in several places. Iron, antimony, lead, tin, and rock-salt, the last four in considerable quantity, are found. Owing to the char-

acter of the country and its thin population (about 35 to the English sq. m.), M. is much infested with wild animals. Lions, panthers, hyenas, wild-boars, and various kinds of deer, gazelles, etc., abound in suitable localities, and occasional devastations are committed by locusts. Ostriches are found in Tafilelet. The Moorish horses, formerly so famous, are now much degenerated. The breeding of sheep, oxen, goats, camels, mules, and asses, is an important item of national industry. Oxen and bulls are chiefly employed in field labor.

The *inhabitants*, like those of Barbary in general, consist of Moors, Berbers, Arabs, Negroes, and Jews, with various intermixtures between these races. More than two-thirds of the population belong to the race commonly called Moors (q.v.), the remaining third consisting mainly of Berbers or Amaziyehs (including the Berbers of the Riff Coast, and the Shelluhs of the Great Atlas); Jews, estimated at 340,000; and negroes. Very few Europeans reside in M. The state of civilization is very low—there is almost no education, and many of the Amaziyehs are complete savages. Excepting the Jews and the few Europeans, the whole population is Mohammedan. Negroes are brought into the country as slaves from Soudan.

M. is divided into four territories—Fez, Morocco, Suse, and Tafilelet. For convenience of administration, the empire is sub-divided into 33 governments or districts ('ammala'), each under the superintendence of a 'caid,' whose chief duty it is to collect the imposts; but the semi-independent tribes are ruled by their own chiefs, and scarcely acknowledge the authority of the sultan. The govt. is purely despotic, and in the absence of written laws, the will of the sultan and his subordinates decides everything. The public officials eke out their allowances by practicing extortion on those under their charge, and are in turn plundered by their superiors. The sovereign of M., called by Europeans the Emperor of M., is known among his subjects as sultan, and assumes the title of Emir-ul-mumenin, or 'Prince of the Believers.' The Grand Cherif (Sherif) at Tangier, being the chief descendant of the Prophet, has really more influence than the sultan.

Education consists in learning to read, write, and recite portions of the Koran, and this quantum of education is somewhat diffused among the people; but the art of printing is unknown, and the arts and sciences are at a very low ebb. The only industrial arts prosecuted to any considerable extent are the manufactures of caps, fine silks, and leather. In the production of leather, the Moors far surpass Europeans, and are able to render any kind of leather extremely soft and white, by the use, it is said, of two species of plants found in the country, and unknown to Europeans. They excel also in the production of brilliant colors in leather. The yellow leather is made in M. Proper, the green in Tafilelet, and the red in Fez. There is an important caravan-trade between M. and Soudan, also with Mecca and the

Levant. The principal exports are wool, hides, grain, cattle and sheep, leather, salt, etc.; and the imports, cotton, linen, and muslin goods, sugar, tea, coffee, hardware, gold-dust, indigo, ivory, etc. Mules, horses, and camels are the internal means of transport. Much of the Arabian trade is by coasting-vessels between Tangier and Egypt, as the carriage across the desert is very costly. At present, two-thirds of the entire trade of M. is in the hands of British merchants.

The army consists of between 20,000 and 30,000 men; of whom one-half are negroes; there is also a sort of militia, amounting to 80,000 or 100,000 men, which is occasionally called out. The navy is now insignificant, but in former times, especially in the 16th and 17th c., it was formidable to the maritime powers of Europe, and was occupied chiefly in piratical expeditions. See RIFF.

The history of M. is generally similar to that of the rest of Barbary (q.v.) till the end of the 15th c. About that time, M. was formed into a monarchy, and notwithstanding internal divisions, had considerable prosperity; and the confines of the empire were extended as far south as Timbuktu. This empire fell to pieces, and was succeeded 1647 by that of the Sherifs of Tafilelet, who conquered both M. Proper and Fez, and united the whole country under one government. This is the present ruling dynasty. In the middle of the 17th c., the empire of M. embraced part of the present province of Algeria, and extended s. as far as Guinea, where it came into collision with the Portuguese settlements. Since the commencement of the 19th c., the rebellions of the wild mountain tribes, the disturbances in Algeria, and difficulties with foreign states, caused by the aggressions of the Riff pirates, have greatly retarded the well-conceived measures of the various rulers for the development of the resources, and increase in civilization of M. In 1814, the slavery of Christians was abolished; 1817, piracy was prohibited throughout Morocco. In 1844, M. took part in the war of Abd-el-Kader against the French, in the course of which Tangier was bombarded and Mogadore occupied; but peace was concluded in the same year. In 1851 and 56, complications took place with France concerning some French vessels which had been plundered by the Riff pirates, but in each case compensation was given by the sultan. In 1859, the Spanish govt., smarting under a series of similar outrages, demanded compensation, and also an apology for an insult to the Spanish flag at Ceuta; and on the sultan's disclaiming all responsibility for these acts, war was declared by Spain, 1859, Oct. 22, and a large force under Marshal O'Donnell invaded M. Two battles were fought, several ports were bombarded, and Tetuan taken, and 1860, Mar. 25, the sultan yielded. A treaty was accordingly signed, 1860, Apr. 27, by which the sultan ceded some portions of his territory, paid 20,000,000 piastres toward the expense of the war, and granted several commercial privileges to Spanish merchants.

MOROC'CO, or MAROC'CO (Arab. *Marakash*): one of the nominal capitals of the sultanate of the same name; in the s.w. of the country, 4 m. s. of the river Tensift, and at the n. end of an extensive and fertile plain. It is surrounded by a strong lime-and-earth wall 30 ft. high. The town is ill built, the streets narrow, irregular, and unpaved; the houses, generally of the same materials as the wall, are one story high, with flat roofs, and narrow openings instead of windows. A large portion of the space within the walls is occupied with gardens, open areas, and market-places. In the bazaar and market-place, a large miscellaneous trade is carried on. M. possesses 20 mosques, of which 6 are remarkable for size and elegance. There are several tanning and leather-dyeing establishments, some of great extent. On the s. of the city, outside the walls, stands a palace of the sultan of M., occupying a space of about 180 acres.—M. was founded 1072, and reached the summit of its prosperity in the 13th c., when it contained more than 700,000 inhabitants, since which time it has been rapidly decaying. It is now half in ruins. Pop. estimated about 60,000.

MORON, *mō-rōn':* town of Spain, province of Seville, 37 m. s.e. of the city of Seville, on the Guadeira. It is built on irregular acclivities, and contains the remains of a once almost impregnable castle, erected by the Moors on Roman foundations. The inhabitants are engaged in the culture and preparation of olive-oil. Pop. 9,000.

MORONE, n. *mō-rōn':* a deep crimson color like the unripe mulberry; maroon, which see.

MOROSE, a. *mō-rōs'* [F. *morose*—from L. *morōsus*, hard to be pleased, capricious—from *mos*, usage, custom: It. *moroso*]: of a sour temper; gloomy; sullen. MOROSE'LY, ad. *-lĭ*. MOROSE'NESS, n. *-nĕs*, the state or quality of being morose; sullenness. MOROSITY, n. *mō-rŏs'ĭ-tĭ*, moroseness; sourness; peevishness.—SYN. of 'morose': surly; austere; ill-natured; ill-humored; gruff; severe; splenetic; crabbed; crusty; churlish; peevish; sullen.

MORPETH, *mawr'pĕth:* market-town and parliamentary and municipal borough of England, in Northumberland; on the Wansbeck, 15 m. n. of Newcastle. Of the principal buildings, the parish church dates from the 14th c.; the Free Grammar-school of Edward VI., founded 1552, has an income from endowment of £650 a year; the town-hall was erected by Sir John Vanbrugh. Flannel is manufactured; brewing, malting, and tanning are carried on, and iron foundries and corn-mills are in operation. Pop. of parliamentary borough (1881) 33,402.

MORPHEUS, n. *mŏr'fūs* [Gr. *Morpheus*—from *morphē*, form, shape—literally, the shaper or fashioner]: in the *classic mythology*, son of Somnus (Sleep), and the god of dreams; named M. because he shapes or molds the dreams that visit the sleeper. He is mentioned first by Ovid, and is represented as an old man with wings, pouring somniferous vapor out of a horn.

MORPHIA, n. *mŏr′fĭ-ă*, or MORPHINE, n. *mŏr′fĭn* [Gr. *Morpheus*, the god of dreams: F. *morphine*]: peculiar alkaloid, the narcotic principle of opium. Morphia or Morphine ($C_{34}H_{19}NO_3 \dagger H_2O$) is the most important of the alkaloids existing in opium, of which it constitutes from $\frac{1}{8}$ to $\frac{1}{16}$ by weight. It occurs in combination with meconic, and sometimes with sulphuric acid. It is obtained in short rectangular prisms, containing one equivalent of water of crystallization, which is expelled at a gentle heat, when the M. melts into a resinoid substance. M. is soluble in about 1,000 parts of cold and in 400 of boiling water; boiling alcohol dissolves it freely, but it is insoluble in ether and chloroform. Its solutions have a bitter taste, and change the yellow color of turmeric paper to brown. M. is not so easily detected in cases of poisoning by opium as Meconic Acid (q.v.). The following are the ordinary tests for it: concentrated nitric acid, when applied to a crystal either of M. or of one of its salts, produces an orange color. A mixture of nitric and sulphuric acids colors it green. When it is mixed with iodic acid, iodine is liberated.—M. is the only opium-alkaloid soluble in lime-water, and this property affords one of the best means of extracting it. A watery infusion of opium is boiled in milk of lime, filtered, mixed with powdered sal-ammoniac, and again boiled. By this means, the lime is converted into the hydrochlorate (or, more correctly, into chloride of calcium), the ammonia is volatilized by the heat, while the M. is precipitated in a crude form, which admits of easy purification.—M. combines with acids to form crystallizable salts, readily soluble in water and in alcohol. Of these, the *Hydrochlorate* (*Muriate*) and the *Acetate*, especially the former, are much used in medicine.

The therapeutic uses of M. and its salts are very similar to those of Opium (q.v.); but the preparations of M. are preferable to opium and laudanum in being less liable to occasion nausea and headache. The ordinary dose of M., or its hydrochlorate or acetate, when given to an adult to allay pain or induce sleep, ranges from a quarter of a grain to half a grain. Hypodermic injection of M. (that is, the introduction of morphia beneath the skin by a small instrument) is not unusual.

MORPHOLOGY, n. *mŏr-fŏl′ŏ-jĭ* [Gr. *morphē*, form; *logos*, description]: department of botany which treats of the forms that the different organs of plants assume, and the laws that regulate their metamorphoses; applied to animals also in same sense; the general laws of the grammatical structure of a language. Morphology is now frequently used to denote the whole science of organic form, vegetable and animal. In a less comprehensive sense, it denotes the study of what has been generally termed Metamorphosis: see METAMORPHOSIS OF ORGANS, in Botany: METAMORPHOSIS OF ANIMALS: BIOLOGY: TISSUE. MORPHOLOGICAL, a. *mŏr′fō-lŏj′ĭ-kăl*, connected with or relating to morphology. MORPHOL′OGIST, n. *-ŏ-jĭst*, one versed in morphology.

MORPHOSIS, n. *mŏr-fō'sĭs* [Gr. *morphē*, shape]: in *bot.* the order or mode of development of any organ or organs.

MORPHY, *mawr'fi*, PAUL CHARLES: 1837, June 22—1884, July 10; b. New Orleans. When 10 years of age he learned from his father the principles of the game of chess, and within two years defeated the best amateur players in the city. He was educated at St. Joseph's College, Spring Hill, Ala., from which he graduated 1854. While in college he defeated several noted chess players, including John J. Löwenthal of Hungary. He studied law, and 1857 was admitted to the bar. In that year he attended the chess congress at New York, and by a series of brilliant games won the championship of the United States. The following Jan. he challenged American amateurs and professionals, offering odds of pawn and move, but no one accepted. He then commenced playing without the board and carrying on several games at once. In June he went to London, where he again met Löwenthal, and in a series of 14 games won nine, losing three, while two were drawn. At Birmingham he met the British Club, and, without seeing the boards, played eight games simultaneously, of which he lost one, won six, and one was drawn. In the autumn he went to Paris, where, when blindfolded, he played at the same time with eight expert players, six of whom he defeated, while the other two games were drawn. He vanquished Anderssen, the German champion, and, after spending some time in London, where he won new honors, returned to New Orleans. He made an effort to practice law; but the excessive strain of his blindfold playing had impaired his mental powers and undermined his physical health to such an extent that he did not succeed. He gave up playing, and for some years before his death could not bear to see or hear of a game of chess. He died at New Orleans.

MOR'RILL, JUSTIN SMITH: b. Strafford, Vt., 1810, Apr. 14. He studied at an academy, after which he was in mercantile life till 1848, when he engaged in farming. He was elected by the republicans 1855 a representative to cong., which position he held by repeated re-elections till 1867, since which date he has been a member of the U. S. senate. He has served on several important committees, and been especially prominent in financial legislation. He drafted the famous tariff bill of 1861, and has written *Self-Consciousness of Noted Persons.*

MORRIS, *mŏr'ĭs:* city, cap. Grundy co., Ill.; an important grain market, 61 m. s.w. of Chicago, on the Illinois river, the Illinois and Michigan canal, and the Chicago Rock Island and Pacific r.r. It has seven churches, a classical institute, newspapers, manufactories of school furniture and of agricultural implements, flour mills, carriage shops, large warehouses, and bituminous coal mines. The streets are lighted with gas. Pop. (1870) 3,138; (1880) 3,486.

MOR'RIS, GEORGE P.: 1802, Oct. 10—1864, July 6; b. Philadelphia, Penn. He removed to New York when quite young, and at the age of 15 began writing for the press. With Samuel Woodworth he established the *New York Mirror*, which was published 1823–42. In 1843, with Nathaniel P. Willis, who had for some time been associated with him, he started the *New Mirror*. After various changes of name the *Home Journal* was established 1846, of which, in connection with Mr. Willis, he was editor until about the time of his death. These papers were among the best literary publications of the time. M. was brig.gen. of the N. Y. militia. He was a graceful writer, and published several vols. of prose and poetry. His most enduring fame rests on his numerous songs, of which *Near the Lake Where Drooped the Willow*, *My Mother's Bible*, *Long Time Ago*, *Where Hudson's Wave*, and *Woodman, Spare That Tree*, are among the most popular. He died in New York.

MOR'RIS, GEORGE SYLVESTER: b. Norwich, Vt., 1840, Nov. 15. He graduated from Dartmouth College 1861, entered the army, was tutor one year, studied theology, and spent two years in philosophical studies in Germany. He was prof. of modern languages and literature in the Univ. of Mich. 1870–80, and 1881 was elected prof. of philosophy in the same institution. For seven years from 1878 he was also a lecturer at Johns Hopkins Univ. Besides a translation of Ueberweg's *History of Philosophy*, he has published *British Thought and Thinkers*, *Kant's Critique of Pure Reason: A Critical Exposition*, also *Philosophy and Christianity*, and *Hegel's Philosophy of the State and of History: An Exposition*.

MOR'RIS, GEORGE UPHAM: 1830, June 3—1875, Aug. 15; b. Mass. He entered the navy 1846, was frequently promoted, and became commander 1866. He was complimented in the report of the sec. of the navy for his brilliant defense of the *Cumberland* when attacked by the *Merrimack*. He rendered valuable service in other engagements. In 1874, he was placed on the retired list. He died in Virginia.

MOR'RIS, GOUVERNEUR: 1752, Jan. 31—1816, Nov. 6; b. Morrisania, N. Y. He graduated from Kings (present Columbia) College 1768, and commenced practicing law 1771. Before reaching his majority he obtained reputation as a writer on financial subjects. He was 1775 an eminent member of the first provincial congress, and aided in drafting the constitution of the state of N. Y. 1776. He was member of the continental congress 1777–80. In the latter year he lost a leg by being thrown from a carriage. He was prominent in arranging the details of the treaty of peace with England, and for more than three years was the assistant of Robert Morris (q.v.) in managing the financial affairs of the nation. He was a delegate to the convention by which the federal constitution was framed, and he made the final revision of its work. In 1788, Dec., he went to Paris, where he was

engaged in business till 1791, when he went to England as confidential agent of the U. S. govt. He was minister to France 1792–94, spent some years in travel in Europe, was in the U. S. senate 1800–03, and pres. of the N. Y. Canal Commission from 1810 till his death. He wrote numerous essays on financial and political subjects, and 1814 was pres. of the N. Y. Historical Society. His *Memoirs* by Jared Sparks were published in three vols., he forms the subject of a vol. in the *American Statesmen Series*, and his *Diary and Letters*, 2 vols., edited by his grand-daughter, were published 1888, Dec. He died at Morrisania, N. Y.

MOR'RIS, HENRY W.: 1806–1863, Aug. 14; b. New York; grandson of Gouverneur M. He entered the U. S. navy 1819, was promoted lieut. 1828, became commander 1849, and capt. 1856. He served with credit at home and abroad, was with the Brazilian squadron 1853–55, in the latter year was transferred to the Mediterranean squadron, in which he was fleet captain. In 1861, he attended to the construction of the famous steam sloop of war *Pensacola* at the navy-yard at Washington. The following year he rendered brilliant service at the reduction of the forts and batteries guarding New Orleans, and when the city surrendered was placed in command of the naval force stationed in the vicinity. He was promoted commodore 1862. Failing health caused his return 1863, to New York, at which city he died.

MOR'RIS, LEWIS: 1671–1746, May 21; b. New York. He obtained a legal education, and rose rapidly in his profession, becoming judge of the superior court of N. J. when only 21 years of age. He was also a member of the council, and later entered the assembly, where he drafted the complaint of that body against Gov. Cornbury. He was for a long period chief justice of N. Y. and N. J., state councilor 28 years, and gov. of N. J. from 1738 till he died. He was influential in the separation of N. Y. and N. J. He died at Kingsbury, N. J.

MOR'RIS, LEWIS: 1726–1798, Jan. 22; b. Morrisania, N. Y.; half-brother of Gouverneur M., and signer of the Declaration of Independence. He graduated from Yale 1746, conducted for some years the affairs of his extensive estate, but by the course of events was drawn into public life. He was outspoken against British tyranny, served in the continental congress 1775–77, was member of a committee on ways and means to obtain necessary supplies, and was active in inducing the Indians to leave the British and join the colonists. He labored to arouse public interest in the cause of liberty. His estate was pillaged by the British, who not only ruined his buildings and carried off his stock, but also burned a thousand acres of his wood-land. After his retirement from congress 1777, he was a member of the state legislature and maj.gen. of militia. On the return of peace he attended to the restoration and cultivation of his estate. He died at Morrisania, N. Y.

MOR'RIS, Lewis: English poet: b. Carmarthen, Wales, and educated at Oxford. He became a barrister, and has held numerous public appointments, especially in connection with educational questions. Till lately, his works were published anonymously. *Songs of Two Worlds, Epic of Hades* (14th ed. 1883), *Gwen*, and *Ode of Life*, are his chief works.

MOR'RIS, Lewis Owen: 1824, Aug. 14—1864, June 3; b. Albany, N. Y. He served as 2d lieut. in the war with Mexico, and reached the rank of capt. 1860. At the opening of the civil war he was in command of a battery in Texas—the only one in that region that remained loyal to the Union. He captured Fort Macon, N. C., and was soon appointed col. of the 113th regt. N. Y. vols., which guarded the city of Washington when it was threatened with invasion by Gen. Lee. In accordance with his earnest wish to enter the field, Col. M. was, 1864, assigned with his regt. to the Army of the Potomac, in which he commanded a brigade. He was killed while leading and cheering his troops as they were making an assault at the battle of Cold Harbor, Va.

MORRIS, n. or **Morrice**, n. *mŏr'rĭs*, or **Morris-dance** [F. *moresque;* It. *moresca*, a Moorish dance: Sp. *morisco*, Moorish—from *Moro*, a Moor]: originally a Moorish dance; fantastic dance, common in the later middle ages, and not yet wholly forgotten in England: the country-dance of the same name, still popular in n. England, is not the same, though it may retain a few elements of the M. The M. with the May-games, was abolished by the Puritans. Its origin is ascribed to the Moors. The chief performer was the *hobby-horse*, so called from the light frame of wickerwork which was fastened round his body, and supplied with a pasteboard head and neck, to give him the appearance of a man on horseback. Bells were also attached to his ankles. Other actors, after a rude fashion, personified the characters of Maid Marian, the Queen of the May, Robin Hood, etc.; and the performance was accompanied by rude music. **Nine-men's-morrice**, a kind of play with nine holes in the ground.

MOR'RIS, Robert: 1734, Jan. 20—1806, May 8; b. Liverpool, Eng. His father brought him to Philadelphia 1747, and placed him in the counting-house of Charles Willing of that city. Upon the death of Mr. Willing his son formed, 1754, a partnership with M., which, under the name of Willing & M., continued till 1793. The Stamp Act was opposed by M., and against his financial interests he signed, 1765, the non-importation agreement. He was a member of the continental congress 1775, voted against the Declaration of Independence 1776, July 1, and declined to vote July 4, but when the instrument was formally adopted he gave it his signature. He was re-elected to congress 1777, and again the succeeding year. During the war his services to the govt. were invaluable. He not only labored with zeal and efficiency on the committee of ways and means, but also brought his immense per-

sonal credit to the help of the cause. Through him Gen. Green was supplied, 1780, with materials for his campaign, and $1,400,000 was raised to help Washington in the movements which brought success to the patriot cause at Yorktown. He originated the Bank of North America, which was opened 1782, under a charter from congress, and to which he subscribed $10,000. He was supt. of the national finance 1781–84, and freely used his means and credit to advance the public interest. He was, 1786, a member of the Penn. legislature, and the next year was sent to the convention which framed the constitution of the United States. He was elected 1788 to the first senate of the new nation, and held his seat in that body till 1795. The office of sec. of the treasury, offered him by Pres. Washington on the formation of his first cabinet, was declined with the recommendation that Alexander Hamilton be appointed. With Gouverneur M. (q.v.) he engaged in the E. India trade, and afterward speculated in land which proved his financial ruin. He was sent to the debtor's prison, Philadelphia, 1798, where he remained till the national bankrupt law of 1802 opened the way for his release. From some inherited interests in a land corporation, his wife had secured a life annuity of $2,000, and with this she provided a home for his declining days. His letters appear in Sparks's *Diplomatical Correspondence of the American Revolution;* the *Life of Morris* was published 1834, and a work on the *Financial Administration of Robert Morris* appeared 1878. He died at Philadelphia.

MOR'RIS, WILLIAM: one of the most notable of contemporary English poets: b. near London 1834. He was educated as a painter. In 1863 he associated himself with some others to found an establishment for designing and manufacturing decorative furniture, wall-paper, stained glass, and the like, and has since been actively engaged in this business. His chief poems are *The Defense of Guenevere* (1858), *Jason* (1867), *The Earthly Paradise* (1870, composed of 24 legendary and romantic tales), *Love is Enough* (1873), a translation of Virgil's *Æneid*, and *Sigurd the Volsung* (1877). He has also published translations from the Icelandic, and lectures on *Hopes and Fears for Art* (1882); also *A Tale of a House of the Crolfings* and the *Kindreds of the Mark*. He has latterly identified himself with the Socialist movement in England, being an office-bearer of the Democratic Federation; and contributes largely to Socialist literature, in prose and in verse.

MOR'RIS, WILLIAM WALTON: 1801, Aug. 31—1865, Dec. 11; b. Ballston Springs, N. Y. He graduated from West Point 1820, was engaged in the Seminole war, the war with Mexico, served on the frontier during the Kansas troubles, and won various promotions. He was appointed col. 1861, and placed in command of Fort McHenry, Baltimore. By prompt and decisive action he suppressed the riots in that city at the opening of the civil war 1861, Apr. 19. He was brevetted brig.gen. 1862, and on the day preceding his death was promoted brevet maj.gen. He died at Fort McHenry.

MORRISANIA, *mŏr-ĭs-ā′nĭ-a:* formerly a village in Westchester co., N. Y. It is on the Harlem river and the New York New Haven and Hartford r.r., abt. 10 m. n. of New York city hall. It has a large number of churches and schools, and numerous fine residences. In early times it was the home of Lewis and Gouverneur Morris of revolutionary fame. Since 1860 it has made a rapid growth. In 1873 it was annexed to New York (q.v.), and it contains, 1890, a station of the city post-office. It is a residence district for New York business men.

MOR′RIS ISLAND: low island, 3½ m. long, at the entrance of the Charleston, S. C., harbor. At Cumming's Point, the n. part of the island, a battery was located which took part in the opening siege of the civil war, which resulted, 1861, Apr. 13, in the surrender of Fort Sumter to the Confederate forces. Fort Wagner and other defenses of the city of Charleston were then constructed on this island. The Union forces succeeded in capturing the s. end of the island 1863, July 10, but Fort Wagner resisted repeated assaults and a siege, which proved one of the most remarkable of the war, was begun. Five parallels were opened, the sappers and miners being protected by batteries which fired over their heads and kept up a constant attack upon the fort. Valuable assistance was also rendered by the naval vessels stationed in the channel. A favorable position having been gained, the final attack was opened Sep. 5. A terrific bombardment, continued 42 hours, caused the garrison to evacuate the fort, which was occupied by the Union troops on the morning of Sep. 7. The operations were continued at night by the aid of brilliant calcium lights. After the capture of the island it was used as the seat of batteries for the bombardment of Charleston, 4 m. away, and to prevent Confederate occupation of the site of Fort Sumter. The famous Parrott rifle, known as the *Swamp Angel*, was located on a marsh near the island.

MORRISON, *mŏr′ĭ-son*, ROBERT, D.D.: founder of Prot. missions in China: 1782, Jan 5—1834, Aug. 1; b. Morpeth, Northumberland, of Scottish parentage. He studied at the Congregational College at Hoxton, and 1805 he was sent to Macao and Canton by the London Missionary Soc., to learn the Chinese language, and to translate the Bible into it. He reached Canton 1807, Sep., and in the course of a year was appointed translator to the E. India Company's factory at Canton. In 1814 he had completed the translation and printing of the whole New Testament. Four years later, by the help of Mr. (afterward Dr.) Milne, he had done the same with the Old Testament; and 1822, he completed and printed his great *Chinese Dictionary* at an expense to the E. India Company of £15,000. Thus M.'s work supplied the indispensable foundation for Christian effort in that vast empire. In 1816, he acted as interpreter to Lord Amherst. In 1818, he established an Anglo-Chinese College at Malacca for English and Chinese literature, and for the propagation of Christianity.

After a residence of 17 years in China, he returned to England 1824, brought with him a collection of 10,000 Chinese books; and addressed large and enthusiastic audiences in behalf of Chinese mission-work. In 1826, he returned to China. In 1834, he accompanied Lord Napier to Canton as interpreter, and died there. Besides the works already mentioned, he is author of *Horæ Sinicæ* (London 1812), translations from the popular literature of the Chinese; *Chinese Grammar* (Serampore 1815), and *Chinese Miscellany* (1825). In 1839, his widow published *Memoirs of the Life and Labors of Robert Morrison.*

MORRISON, *mŏr'i-son*, WILLIAM RALLS: born 1825, Sep. 14, in Monroe co., Ill. He graduated from McKendree College, and after serving in the Mexican war as a private, studied law, was clerk of the co. court four years, in the state legislature three years, and speaker of that body 1859. He commanded the 49th Ill. regt. in the civil war until 1863, when he entered congress as a democrat. He was twice a defeated candidate for re-election, but was returned 1872, taking his seat the following year and serving till 1887. In 1873–75 he was chairman of the ways and means committee. He has long been an earnest advocate of tariff reform, and largely on that issue was defeated for congress in the election of 1886. He has been a delegate to two national political conventions—the union 1866, and the democratic 1868. He is (1890) a member of the Interstate Commerce Commission, having been appointed 1887 by Pres. Cleveland to serve for five years.

MOR'RISTOWN: town, cap. Morris co., N. J. It is on the Whippany river, and the Delaware Lackawanna and Western r.r., 31 m. w. by n. of New York and 50 m. n.n.e., of Trenton. It is about 500 ft. above sea-level, on a table land inclosed by hills, is nicely laid out, and has a public square in which has been erected a fine granite monument to the soldiers who died in the civil war. There are several churches; and one of the Presb. churches was among the first founded in the state. The public-school system is good, and there are institutions for higher education. There is a public library, three newspapers are published weekly, and there are two banks. Among public buildings are the court-house, an orphan's home, and the state asylum for the insane. The latter—at Morris Plains—is one of the finest structures of the kind in the country, cost over $2,000,000, and accommodates 1,000 patients. It is on Whatnong Mountain, about 2 m. from the centre of the town, and the grounds comprise 400 acres. M. is lighted by gas and supplied with pure spring water. It is the home of many people doing business in New York, and is a popular summer resort. It has considerable trade, and the Speedwell iron works do a large manufacturing business. There are also mills of various kinds and a carriage factory. Great interest attaches to the town from the fact that it was twice, 1776–7 and 1779–80, the headquarters of the

American army. The Ford mansion, which was occupied by Washington, and in which he was visited by many eminent men, including Lafayette, Baron Steuben, Count Pulaski, and Gen. Putnam, is under the control of the Washington Assoc. of New Jersey. Pop. of M. (1870) 5,674, (1880) 5,418, (1885) 8,760.

MORROW, n. *mŏr'rō* [Goth. *maurgins*, morn : OE. *morwe* or *morwen*, morn (see MORNING,] : the first day after the present one. GOOD MORROW or GOOD MORNING, a term of salutation. TO-MORROW, the first day after the present.

MORS, *mawrss :* island belonging to Denmark, largest one of the group in the Lym-fiord, s. of Jutland; nearly 24 m. long and about 11 m. broad. Nearly one-third of its surface is low and wet. The remainder is a fertile table land. Nykjöbing (or Nyekiobing), on the e. coast, is the largest town. Pop. of island (1880) 6,000.

MORSE, n. *mŏrs* [Russ. *morj*] : the sea-horse or walrus : see WALRUS.

MORSE, n. *mŏrs* [L. *morsus*, a biting, a catching fast] : in *eccles. costume*, the clasp or fastening of a cope, frequently made of the precious metals and set with jewels.

MORSE, *mawrss*, JEDIDIAH., D.D.: 1761, Aug. 23—1826, June 9; b. Woodstock, Conn. He graduated from Yale College 1783, taught school while studying theology, was for a short time tutor in Yale College, had a brief pastorate at Medway, Ga., and was pastor of a Congl. church, Charlestown, Mass., 1789–1820. In the latter year he changed his residence to New Haven, and for two years, under appointment by the sec. of war, was engaged in investigating the condition of the Indian tribes in that vicinity. He was a staunch defender of the old faith in the days of the Unitarian defection, was one of the founders of the Andover Theol. Sem., and was active in securing the organization of the Park Street Church, Boston, on a Trinitarian basis. For five years from 1805 he edited the *Panoplist.* He published the first American text-book on geography and followed it by several other works on the same science, which were very popular. With the Rev. Elijah Harris he published a *History of New England.* He published many sermons and addresses, and *Annals of the American Revolution.* He died at New Haven.

MORSE, SAMUEL FINLEY BREESE, LL.D. : inventor of the electric telegraph: 1791, Apr. 27—1872, Apr. 2; b. Charlestown, Mass.; son of Jedidiah M., D. D. While at Yale College, from which he graduated 1810, he gave considerable attention to painting. After studying for a few months under Washington Allston, he went with him to London, where he had instruction from Benjamin West. His plaster model of *The Dyng Hercules* was awarded a gold medal by the Adelphi Soc. of Arts. and the painting of the same subject was (1813) considered one of the best 12 pictures exhibited at the Royal Acad. After working some years in Boston, and in Charleston, S. C., he

removed 1823 to New York. Here he founded the National Acad. of the Arts of Design, of which he was pres. for many years, and is said to have delivered the first series of lectures on the fine arts ever given in this country. For three years from 1829 he was in Europe studying art. He had long been interested in scientific matters, and while abroad became convinced that electricity might be made a means for conveying information. On his return voyage he made drawings of his afterward famous telegraph, and invented the alphabet of dots and dashes known by his name. On arriving at New York he made models of the instruments and continued his experiments. He was appointed 1835, prof. of fine arts in the Univ. of New York. In 1837 he exhibited an instrument by which an electrical current was passed through 1,700 ft. of wire; the same year Sep. 28, he applied for a patent, and the following Dec. solicited help from the govt. in building a line to demonstrate the utility of his invention. He went, 1838, to Europe to enlist the aid of foreign powers, but beyond obtaining a patent in France, which, on account of its restrictions proved practically useless, he had no success. He returned to New York, and for four years was in such poverty that he sometimes suffered for want of food. He had a few art pupils, painted portraits when he could obtain commissions, and continued his appeals to the govt. In the spring of 1843 congress appropriated $30,000 for the construction of a trial line of telegraph. 1844, May 24, the first line, 40 m. in length, from Washington to Baltimore, was formally opened. Congress declined to purchase the patent for $100,000, but voted $8,000 to maintain the original line. A stock co. was formed, and after a period of difficulty and litigation, the telegraph became a valuable property. M. was given the degree of LL.D., by Yale College, was made a member of numerous scientific societies in this country and abroad, and was highly honored by numerous foreign powers. By careful experiments he demonstrated the feasibility of submarine cables, and with Prof. Draper was the first successful photographer of living subjects. A bronze statue of M. was erected 1871 in Central Park, New York. His last public appearance 1872, Jan. 17, was at the dedication of the statue of Benjamin Franklin in Printing House Sq., on which occasion he delivered the address. He was a frequent and able contributor to the press. He died in New York city.

MORSE, SIDNEY EDWARDS: 1794, Feb. 7—1871, Dec. 24; b. Charleston, Mass.; son of the Rev. Jedediah M., D.D. He graduated from Yale College 1811, studied theology, and then took a law course at Litchfield, Conn. His contributions to the *Columbian Sentinel*, while he was a student, had attracted attention. A request from several prominent men that he would establish a religious journal led him 1815 to publish the *Boston Recorder* (Congl.), the first religious newspaper in the country, long since merged in the *Congregationalist*, in Boston. He then aided his elder brother in the invention and intro-

duction of a flexible piston pump. In connection with his younger brother RICHARD C. M. he established 1823 the *New York Observer* (Presb.), of which for 35 years he was senior editor and proprietor. With Henry A. Munson he discovered and perfected a method of printing maps in various colors on a press. He also published some geographical text-books which had a large sale. The closing years of his life were largely given to the invention of an instrument called the bathyometer, for deep-sea soundings. He died in New York. —His brother, RICHARD CARY M. (1795, June 18—1868, Sep. 23; b. Charlestown, Mass.), graduated from Yale College 1812, studied theology, aided his father in his geographical labors, and 1823–58 was associated with his brother in the management of the *New York Observer*. 1858 he retired from business, and five years later removed to New Haven. He died at Kissingen, Bavaria.

MORSE ALPHABET, [after the inventor]: the dot and dash marks made by the recording instr. in telegraphy to indicate letters.

MORSEL, n. *mŏr'sĕl* [OF. *morcel* or *morsel*, a morsel—from mid. L. *morsellum*, a thing bitten, a mouthful—from L. *morsus*, a bite: It. *morsello*, a bite: F. *morceau*]: a bite; a mouthful; a small piece.

MORSHANSK, *mŏr-shânsk':* town in the govt. of Tambov, Russia, 56 m. n. of Tambov, on a feeder of the Oka. M. is the port for shipment of corn, the shipments annually amounting in value to 5,000,000 rubles ($2,795,000). There is also a large market for the cattle and sheep of the s.e. provinces, the average annual supply being 20,000 cattle and 100,000 sheep; also for melted grease, of which 1,500,000 rubles ($838,500) worth is sent yearly to St. Petersburg and Moscow. The trade of the town itself is of little importance, the chief establishments being soap-boileries, flour-mills, and sailcloth manufactories. Pop. (1880) 19,500.

MORT, n. *mŏrt* [F. *mort*, death—from L. *mortem*]: in *hunting*, notes sounded at the death of game; the skin of a lamb that has died of disease: ADJ. fatal.

MORT, n. *mŏrt* [Icel. *margt*, much]: *colloquially*, a great quantity; a large amount; a salmon in its third year.

MORTAL, a. *mŏr'tăl* [OF. *mortal;* F. *mortel*—from L. *mortālis*, mortal—from *mortem*, death: It. *mortale*]: subject to death; destined to die; bringing death; belonging to man; deadly; punishable with death; not venial, applied to sin; extreme; violent: N. a human being; a creature subject to death. MOR'TALLY, ad. *-lĭ*, in a manner to cause death; in the highest possible degree. MORTALITY, n. *mŏr-tăl'ĭ-tĭ*, state of being mortal; subjection to death; frequency of death; death; human nature. BILLS OF MORTALITY, returns formerly issued periodically, giving the number of births and deaths in London. WITHIN THE BILLS OF MORTALITY, embraced or comprisable within those returns.

MORTAL'ITY, LAW OF: principle deciding the average duration of a multitude of human lives. While there are few future events the date of whose arrival is more uncertain than that of death to any one man, on the other hand, the average duration of a multitude of human lives is found to be in accordance with a law as sure as that of gravitation. If it be asked how many lives must we take into account, before we can depend on deducing from them a duration equal to the actual general average, the only answer is, that the more we have the more nearly must we approach this result; the fluctuation ultimately becoming so small as to be practically of no effect. So long ago as early in the 17th c., a certain John Graunt of London published *Natural and Political Observations on the Bills of Mortality*, which has been called 'the earliest movement in economical arithmetic, and the closest approximation to the data on which life-assurance is founded.' About the same time, Sir William Petty gave to the world many curious calculations and speculations on the same subject. In 1693, Dr. Halley published the Breslau tables of mortality, the first work which really raised the subject to the rank of a science. Halley's speculations had, however, been preceded by those of Pascal in France, and of De Wit in Holland; and the latter famous man is probably entitled to be considered as the first who has applied the doctrine of probabilities to the valuation of life in the question of annuities. His treatise will be found in vol. II. of the *Assurance Magazine*. Halley's tables are printed in the *Philosophical Transactions* for 1693, No. 196. In 1713, J. Bernouilli's important work was published; and 1742, Dr. Price, availing himself of the principles laid down by Halley, and of data previously published by 'John Smart of Guildhall, London, Gent.,' gave tables of mortality for London. In 1746, M. Deparcieux published at Paris *Essai sur les Probabilités de la Vie Humaine*, in which he gave six valuable tables. In one of these, computed from the registers of different religious houses, it was shown, for the first time, that female life is superior in longevity to male. In 1770, appeared the first ed. of Price's *Observations on Reversionary Payments*. The speculations of Buffon, Simpson, and De Moivre about the same time were of much importance. Mortality tables are tables showing the operation of the law of mortality. The correct method of framing them is by analyzing and collating accurate and sufficiently extensive statistics of life and death. They enable us to form a fair estimate of the number of human beings who will die at the end of a given period out of a given number alive at the beginning of it; and hence, the chance of life and death to the individual, and the mean duration of life at any age. Tables showing the mean duration of life have been constructed in two ways: 1st, From statistics of deaths alone; and, 2d, From statistics of life and death. By the first plan, they would be deduced as follows: Suppose, on searching a parish register, that we found

recorded 100 deaths of children in their first year, we should assume that, on an average, ½ a year of life would have fallen to each. This gives 50 years of life among 100. If we found that 60 had died in their second year, assigning one year and a half to each, we should have $60 \times 1{\cdot}5 = 90$ years among the 60; and so on for every age up to the oldest on the register. The sum of all the years of survival, divided by the numbers who have survived, will give the mean duration of life from birth; and the sum of all the years of survival after a given age, divided by the numbers who have survived, will give the mean duration at the given age; in both cases as nearly as the data enable us to give it; but the data are insufficient. Suppose we found by a register for 1873 that 100 children had died in their first year and one man in his 96th, it is plain that, to make this ratio a fair one, there ought to have been as many births in 1778 as in 1873. If there have been only half as many born at the former date as at the latter, then we must put two lives into the calculation to make it correct; and we must proportion our results similarly at all intermediate ages. Again, suppose four deaths at age 23 to be registered, we cannot tell how many of those born in 1850 may have emigrated from one parish, nor do we know how many born elsewhere in that year may have come into it. For the rule and formula for obtaining the mean duration of life under the second method, which is an absolutely certain one, see LIFE, MEAN DURATION OF. The following are the tables now most generally used by assurance and annuity offices in Great Britain: I. The Northampton (Dr. Price's). This table was framed from the register of burials in the parish of All Saints, Northampton, 1735–80. Being constructed on deaths alone, it has, as was to have been expected, proved faulty. It gives the probabilities of life too low at the younger and middle ages; and those offices which still use it have some difficulty in keeping themselves right. II. The New Northampton (Nos. 1 and 2) constructed by Dr. Farr: see Eighth Report of the Registrar-gen. for England, pp. 277–348. No. 2 is based on the deaths alone in Northampton during the seven years 1838–44. In its results it agrees almost exactly with that of Dr. Price. No. 1 was deduced from a comparison of the deaths during 1838–44 with the census returns of 1841. It differs widely from No. 2 and from Dr. Price. By the two latter, the mean duration of life is respectively found as 24·88 years and 25·18 years. By No. 1, it is 37·5 years. III. The Carlisle. This table was constructed from observations made by Dr Heysham at Carlisle, 1780–87. It is now generally understood that the mortality in towns is understated at ages 15–35, owing to the immigration of healthy men and women from the country. Again, the female population of Carlisle was excessive during the period in question, and the extent of the observations was limited. Owing to these facts, this table gives rather too low a rate of mortality, and is a little irregular in its graduation. In

a table prepared by W. T. Thomson, Esq., in a Report on the Ministers' Widows' Fund of the Church of Scotland, 1861, he shows that the lives of the Scotch clergy are, as to duration about half a year better up to the age of 44 than appears in the Carlisle; at 45, they are equal; and at 45 to 80, they are half a year worse. Thereafter they vary. The widows are half a year better up to the age of 61, equal at 62, and nearly so to the end. Probably the Carlisle gives a fair mortality rate for a population in healthful conditions. IV. The Government. These were computed by Mr. Finlaison on the lives of 22,000 nominees for government annuities. They are important chiefly as giving a view of the value of female life, but this view differs widely from those given either by the 'Experience' or by the 'English' table. At age 20, for instance, the mean duration of female life is, by the Government table 5½ years more than the male; by the Experience, it is 4 years less. In some measure this wide divergence may perhaps be accounted for by the fact that the Government results are deduced from annuitants, the Experience from assured lives. The experience of late years has, however, led to some modification in the relative values of male and female life in government tables. V. The English (Nos. 1, 2, and 3). No 1. is deduced from the living by the census of 1841, and from the deaths at corresponding ages in the same year: see 5th and 6th Reports of the Registrar-gen. for England, where the tables will be found, and their construction explained. No. 2 is deduced from the living in 1841, and from the deaths in the seven years 1838–44. No. 3 is deduced from the population in 1841 and 51, and on the deaths for the 17 years 1838–54; male and female life being calculated separately and in combination. These 'English' tables probably give the results of the average mortality of England more correctly than any others which we have. They are the result of enormous labor on the part of Dr. Farr. The observations were taken on the plan recommended by Prof. de Morgan and Griffith Davies. VI. The Experience. These were prepared by a committee of eminent actuaries on the data afforded by the combined experience of 17 life-assurance offices. The objections to which they are liable are, that certain lives having been more than once assured have appeared twice or oftener as elements in the calculation; that the average term over which the observation of the offices extends is only eight and a half years; and it is probable that the mortality which will prevail in assurance societies when they have reached maturity is somewhat understated: see letter by Dr. Farr in Appendix to 10th Report of Registrar-gen., p. 11. Further, the data for old ages were deficient, and this of course affects the whole. Many curious results are brought out by this table. It shows that 'town' *assured* life is as to duration, superior to 'country;' that female *assured* life is on the whole inferior to male; and that Irish life

is worst of all. At age 20, 'town' mean duration is 41 years, 2 months; country, 40 years, 4 months; Irish, 34 years, 11 months. The observations of the Standard Assurance Company do not, however, bear out these results; and they are doubtless so largely affected by the elements of *Care in Selection* as to render it impossible to found on them any conclusion of practical value. A new set of 'Experience' tables was published 1872, based on the mortality experiences of 20 offices, 10 English and 10 Scotch. They do not show any widely different results from the former Experience tables. These form a very valuable set of tables. They give the results of English and Scotch experience united, and of Scotch separately.

In all tables deduced from the experience of assurance and annuity societies, the fact of *selection* must not be lost sight of, either in using them for comparison, or as the basis of other tables. Actuaries, however, seem generally of opinion that the selection exercised by assurance societies does not really lower their rates of mortality below the general average; without selection, their rate would be above the general mean; for, it will be observed, that the public are continually selecting against the offices by offering inferior lives, and good lives often surrender their policies, while lives which have become bad hardly ever surrender. Again, the value of medical examination gradually disappears, and in ten years at most it is quite lost. Five to seven years is indeed now held by the assurance offices to exhaust its value: see Minutes of the House of Commons' Committee on Assurance Associations, 1853; and Life-contingency Tables by E. J. Farren, pp. iii.—xiii. Though female life is, as a whole, undoubtedly superior in duration to male, yet as there are more critical periods in it, it is probable that the public may more frequently select it than male life against the societies. A valuable report on the Madras Military Fund (London, 1863) gives tables constructed on the mortality rates prevailing among the officers, wives, and widows interested in the fund. As they have been prepared by eminent men on very ample data, they will probably be very valuable to societies transacting business in India. The following is a view of the mean duration of life, at the beginning and at each decennial period, according to some of the tables mentioned above:

MORTALITY.

TABLE SHOWING THE 'MEAN DURATION' OF HUMAN LIFE, ACCORDING TO VARIOUS AUTHORITIES.

AGE.	*Northampton* Male and Female combined. Dr. Price.		*Carlisle.* Male and Female combined. Dr. Heysham.		*Government.* Female. Finlaison. 1829.		ENGLISH LIFE TABLE. Dr. Farr. Male.		Female.		Male and Female combined.		Experience of Twenty Offices. Male Life.	AGE.
	Yrs.	Mos.	Yrs.	Mos.	Yrs.	Mos.	Yrs.	Mos.	Yrs.	Mos.	Yrs.	Mos.		
0	25	2	38	9	55	6	40	2	42	2	41	2	.....	0
10	39	9	48	10	51	1	47	1	47	10	47	5	50·29	10
20	33	5	41	6	44	0	39	11	40	10	40	4	42·06	20
30	28	3	34	4	37	7	33	2	34	3	33	8	34·68	30
40	23	1	27	7	31	1	26	6	27	9	27	2	27·40	40
50	18	0	21	1	24	4	20	0	21	1	20	7	20·31	50
60	13	3	14	4	17	4	13	7	14	5	14	0	13·83	60
70	8	7	9	2	11	0	8	6	9	0	8	9	8·50	70
80	4	9	5	6	6	6	4	11	5	2	5	1	4·72	80
90	2	5	3	3	2	10	2	9	2	10	2	9	2·36	90
100	0	0	2	3	0	6	1	6	1	6	1	6	*0·93	100
	Both Sexes.		Both Sexes.		F'male Life.		Male Life.		F'male Life.		Both Sexes.			

* At 95.

AMERICAN TABLE OF MORTALITY.

The following table of mortality is based on the American experience, as developed by the use, and adopted for the guidance of the leading life insurance companies. It shows how many out of 100,000 persons at the age of 10 will be living at the beginning of each succeeding year; how many will die during any given year; and the expectation of life at the opening of any year of age from 10 to 95 inclusive:—

AGE.	Number Living.	Number Dying Each Year.	Expectation of Life.	AGE.	Number Living.	Number Dying Each Year.	Expectation of Life.
10	100,000	749	48·72	23	90,471	720	40·17
11	99,251	746	48·08	24	89,751	719	39·49
12	98,505	743	47·45	25	89,032	718	38·81
13	97,762	740	46·80	26	88,314	718	38·12
14	97,022	737	46·16	27	87,596	718	37·43
15	96,285	735	45·50	28	86,878	718	36·73
16	95,550	732	44·85	29	86,160	719	36·03
17	94,818	729	44·19	30	85,441	720	35·33
18	94,089	727	43·53	31	84,721	721	34·63
19	93,362	725	42·87	32	84,000	723	33·93
20	92,637	723	42·20	33	83,277	726	33·21
21	91,914	722	41·53	34	82,551	729	32·50
22	91,192	721	40·85	35	81,822	732	31·78

AMERICAN TABLE OF MORTALITY (*Continued.*)

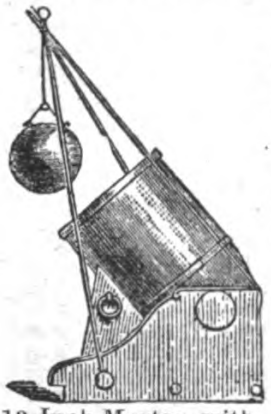
Age.	Number Living.	Number Dying Each Year.	Expectation of Life.	Age.	Number Living.	Number Dying Each Year.	Expectation of Life.
36	81,090	737	31·07	66	47,361	2,070	10·54
37	80,353	742	30·35	67	45,291	2,158	10·00
38	79,611	749	29·62	68	43,133	2,243	9·47
39	78,862	756	28·90	69	40,890	2,321	8·97
40	78,106	765	28·18	70	38,569	2,391	8·48
41	77,341	774	27·45	71	36,178	2,448	8·00
42	76,567	785	26·72	72	33,730	2,487	7·55
43	75,782	797	26·00	73	31,243	2,505	7·11
44	74,985	812	25·27	74	28,738	2,501	6·68
45	74,173	828	24·54	75	26,237	2,476	6·27
46	73,345	848	23·81	76	23,761	2,431	5·88
47	72,497	870	23·08	77	21,330	2,369	5·49
48	71,627	896	22·36	78	18,961	2,291	5·11
49	70,731	927	21·63	79	16,670	2,196	4·74
50	69,804	962	20·91	80	14,474	2,091	4·39
51	68,842	1,001	20·20	81	12,383	1,964	4·05
52	67,841	1,044	19·49	82	10,419	1,816	3·71
53	66,797	1,091	18·79	83	8,603	1,648	3·39
54	65,706	1,143	18·09	84	6,955	1,470	3·08
55	64,563	1,199	17·40	85	5,485	1,292	2·77
56	63,364	1,260	16·72	86	4,193	1,114	2·47
57	62,104	1,325	16·05	87	3,079	933	2·18
58	60,779	1,394	15·39	88	2,146	744	1·91
59	59,385	1,468	14·74	89	1,402	555	1·66
60	57,917	1,546	14·10	90	847	385	1·42
61	56,371	1,628	13·47	91	462	246	1·19
62	54,743	1,713	12·86	92	216	137	·98
63	53,030	1,800	12·26	93	79	58	·80
64	51,230	1,889	11·67	94	21	18	·64
65	49,341	1,930	11·10	95	3	3	·50

In the present article, we have considered the law of mortality, chiefly as it bears on insurance and other monetary transactions: see INSURANCE (*Life*). For the wider view of the subject, as varying with occupation and in different ages and countries, see VITAL STATISTICS.

MORTAR, n., *mŏr'tĕr* [L. *mortārĭŭm;* It. *mortaro;* F. *mortier*, a mortar: Low Ger. *murt*, what is crushed or ground; *murten*, to crush, to mash]: a strong, wide-mouthed vessel in which substances are bruised or pounded with a pestle; a short piece of ordnance of large bore, used for throwing bombs and shells—so named from its original resemblance to the mortar in which substances were pounded (see below). MORTAR-BED, the bed or carriage of wood on which a mortar for war rests. MORTAR-VESSEL, class of gun-boat for mounting sea-service mortars. *Mortar-boats* were smaller vessels. The earliest mortar-vessel was the 'bomb-ketch,' convenient because of the length of deck without a mast. To resist the recoil, mortar-vessels had considerable breadth in proportion to length: the mortar was slung amidships in a massive 'bed.' Mortar-vessels are now scarcely used; though mortars are still carried on some war-ships.

MORTAR, n. *mŏr'tĕr* [L. *mortārĭŭm;* F. *mortier;* Ger. *mortel*, mortar—so called from the materials being pounded up together; Dut. *mortel*, gravel, brick-dust: connected with MORTAR 1]: a mixture of lime, sand, and water, used as a cement for building with stones or bricks: see CEMENT.

MOR'TAR: piece of artillery differing from a cannon in the large diameter of its bore in proportion to its length, and in the fact that it is usually fired at a considerable angle, so that the projectile may strike the object aimed at in a direction more or less vertical. Mortars are intended for discharge of Live SHELLS (q.v.) or carcasses. As the projectile has a large diameter, and, except in rare instances, a very great range is unnecessary, a comparatively small charge of powder is requisite. To give this its utmost power and concentration, it is confined in a hemispherical chamber at the lower end of the bore, but of less diameter. The shell completely closes this chamber; and, when the explosion ensues, receives its full force on its centre. Ordinary mortars range in diameter of bore from 5 to 13 inches.



13-Inch Mortar, with Loading Apparatus.

The 13-inch M. is shown in the annexed figure. Larger mortars have been tried at times, as at the siege of Antwerp Citadel 1832, when the French brought one of 24-inches bore to the attack. This monster, owing to its unwieldiness and other causes, was a failure. Larger still than this, though perhaps more manageable, is Mallet's great 36-inch M., constructed 1855, of iron parts welded together, and now at Woolwich, England, rather as a curiosity than for use. As loaded shells are of immense weight, so heavy, indeed, as in larger calibres to require the apparatus depicted in the fig. to deposit them in their places, and the M. is fired at high elevations, the recoil is so great and so nearly vertical that no carriage could withstand the shock; it is necessary, therefore, that the M. should be mounted on a solid iron or timber bed, by the trunnions, which are placed behind the breech, and supported in front by massive blocks of wood. This arrangement renders the apparatus so heavy that mortars of large size are rarely used in field operations, their ordinary positions being in defensive or siege works, and in mortar-vessels. More wieldy are the Coehorn mortars, invented by the Dutch engineer of that name, for clearing the covert-way or ditch of a fortress. This M. is sufficiently small to be managed by one man, and is accounted useful in siege or defense operations. The French use a similar Lilliputian ordnance, called pierriers or stone-throwers. The use of mortars is much less important than formerly, elongated shells of great weight being now thrown from rifled cannon. But for

bombarding fortresses and naval arsenals, mortar-shells are more efficient than horizontal or howitzer shells fired from the pivot guns of steam-frigates.

MORTARA, Edgar: Jewish boy, whose case attracted great and painful interest throughout Europe. 1858, June 23, Signor Momolo M., manufacturer and wholesale merchant of cloth in Bologna, and by religious profession a Jew, returning home at night, found his house in the possession of the police, who informed him that they had orders from the inquisitor-in-chief at Bologna, to carry off his son, Edgar, who had been surreptitiously baptized into Christianity by a Rom. Cath. maid-servant. The inquisitor was waited upon a little after midnight, by some friends of the family who implored delay. He informed them that he was acting under the orders of the Abp. of Bologna, but consented to stay procedure till 'next evening.' Next evening the papal carbineers entered the house 'tore the child out of his father's arms,' and carried him to Rome, where he was immured in a convent. The bereaved father immediately followed, obtained several interviews with Cardinal Antonelli, and offered to prove that the servant who said she had baptized Edgar had turned out to be a worthless prostitute, living in sin with Austrian officers. The cardinal declined to interfere, on the ground that the case did not come under his jurisdiction; later, the parents prevailed on him to allow several interviews, in which Edgar earnestly entreated his father and mother to take him home —a hopeless request. The case soon became known throughout Europe, and excited great indignation, particularly in England. The Evangelical Alliance drew up a protest, which was signed by the Abp. of Canterbury and more than 20 other bishops, by a large number of peers, members of parliament, heads of colleges, and ministers of the gospel, by more than 100 mayors and provosts, and by many other influential laymen. It was presented to Lord John Russell. The British Jews presented another. Nothing, however, was effected by these efforts. Edgar M. remained—latterly of his own choice, as the result seems to prove—in the hands of the Rom. Cath. Church authorities. He was educated for the priesthood, became an Augustine monk of the monastery Notre-Dame de Beauchène, and preached his first sermon 1874. The narrative was necessarily an *ex parte* statement; no authorized exposition of the facts, on the part of the Roman authorities, having ever been made public.

MORTER, n. *mŏr'tĕr* [F. *mortier*, a lamp burned over a corpse—from *mort*, death]: in *OE.*, a lamp or light; a chamber-lamp.

MORTGAGE, n. *mŏr′gāj* [OF, *mortgage*—from F. *mort*; and *gage*, a token or pledge: L. *mortŭŭs*, dead—*lit.*, a dead pledge], the grant of lands or houses to a creditor in security for the repayment of his money; state of being pledged: V. to convey or make over, as property to a creditor in security for a debt; to pledge; to put to pledge. MORT′GAGING, imp. *-ĭng*. MORTGAGED, pp. *mŏr′-gājd*: ADJ. conveyed or granted, as real property in security for a debt. MORTGAGER, n. *mŏr′gā-jĕr*, the person who grants lands or houses in security for debt. MORT′GAGEE′, n. *-gā-jē′*, the person to whom an estate is mortgaged: see MORTIFY 2, and MORTMAIN. *Note.*—*Primarily*, MORTGAGE contains the condition that in case of non-payment at a certain time the estate becomes *dead*—that is, passes wholly into the hands of the creditor.—*Mortgage* in law is the temporary pledging of land in security of a debt: and as the land cannot be delivered into the creditor's hand, he acquires a hold over it by a deed called an indenture, or deed of M. The ordinary form of a M. deed resembles an absolute conveyance, but it contains a proviso that if the money borrowed is repaid within a certain time, then the mortgagee shall reconvey the land to the mortgagor or borrower. There is a mode of executing a M. without any deed, which in England is common with bankers and others who lend money: this consists in the borrower taking the title-deeds of his land to the banker, who keeps the deeds and lends money on the faith of them. This is called an equitable M. by deposit of title-deeds, but in fact is as good as any other M. In Scotland there is no such practice. See BOND, in Law. Mortgages in England are not a first-class security: hence trustees who are not specially authorized by their deed or will to invest in M. security do it at their risk, it being assumed that the only investment absolutely safe is government stock. In Scotland, mortgages are generally called bonds and dispositions in security, and form a higher and better security than in England, owing to a regular system of registration of deeds affecting land: hence trustees are entitled to invest their funds there in M. security, which is considered as safe as government stock, and less liable to fluctuations of interest.

In the United States a marked change has taken place in the rules defining the powers of a M. and the incidents relating to it, many of the provisions of the common law having been replaced by decisions in equity. Thus, it was formerly, and in some states still is, held that a M. is a conveyance with title in the mortgagee, that the title descends to the mortgagee's heirs on his death, and that it can be assigned only by an instrument similar to a conveyance. Against this view it is held in some states that the M. is a mere attendant upon the debt, that the assignment of the debt carries the M. with it as an incident, and that both debt and M. on the mortgagee's death belong to his personal representatives and not to his heirs (J. W. Dwight). A similar divergence

is found in decisions on other points, as well as in their observance in the various states. All kinds of property capable of actual sale may be mortgaged, but an expectancy cannot be; hence an heir cannot mortgage his possible future possessions. Whatever will render a general contract invalid will do the same to a M. The mortgagor is held to be the owner, and both he and every one deriving an interest from him subsequent to the M. possess the right of redemption, and may pay the debt and interest and be relieved of the M., either at the end of a time specified in the M., or at the convenience and will of the mortgagor or some person deriving an interest from him. But the creditor, in default of payment of interest, or for his protection otherwise, is entitled to close the transaction with the mortgagor or his legal representative by absolutely 'foreclosing' the M. and taking the property, or by selling the property and taking from the proceeds the amount of the debt with accumulations and expenses, leaving the remainder to his debtor. In the case of a mortgagor's death, the source from which the M. may be redeemed is governed by different rules. It is the practice in some places for redemption to be made from the personal estate as that was the one directly benefited by the transaction; and as the personal property passes to the executors or administrators, the latter are held primarily liable for payment, and the heirs are made their sureties. On the other hand, it is elsewhere held that payment must be made from the real estate; and as this by common law passes directly to the heirs, they are primarily responsible, and the executors become their sureties. Unless redeemed, a M. attaches to the property on sale, and it is bought either subject to the M., in which case the purchaser is not personally chargeable, or with the assumption of payment of the M., when the purchaser becomes personally responsible for the full amount of the M., even should the property on which it lies diminish in value below the amount. The mortgagee of a M. on personal furniture and household effects, or on machinery, material, stock on hand, or commercial goods, may protect himself by bringing a bill in equity to obtain a decree of foreclosure, and a sale, or, if he has possession of the thing mortgaged, by selling it after notifying the mortgagor of the amount of debt due and of the time of sale. To prevent resort to chattel mortgages for the purpose of defrauding creditors by placing property beyond their reach, it is provided in most states that such mortgages, like those on real property, shall be filed in some public office, and various penalties are imposed for non-compliance; but it is doubtful if any rules fully cover the intention of the law in this respect.

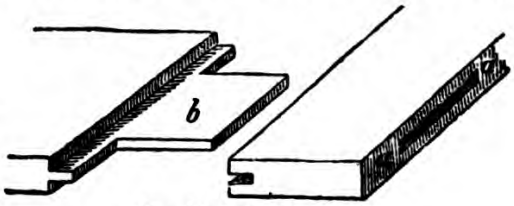
MORTIFEROUS, a. *mŏr-tĭf'ĕr-ŭs* [L. *mortifer*, death-bringing—from *mors*, death; *fero*, I bear]: bringing or producing death; deadly; fatal.

MORTIFY, v. *mŏr'tĭ-fī* [F. *mortifier*—from mid. L. *mortificārĕ*, to mortify—from L. *mors*, death; *facĭō*, I make; *fiō*, I am made]: to destroy vital qualities; to subdue or bring into subjection, as the appetites or passions; to subdue the body to the mind, as by abstinence or severities; to humble or depress; to vex; to lose vitality, as flesh; to become corrupt. MOR'TIFYING, imp.: ADJ. that tends to humble or abase; humiliating; vexing; becoming mortified. MOR'TIFIED, pp. *-fīd:* ADJ. humbled; vexed; subdued; affected with gangrene. MOR'TIFIER, n. *-fī-ĕr*, one who. MOR'TIFICA'TION, n. *-fĭ-kā'shŭn* [F.—L.]: humiliation; vexation; depression by disappointment; the subduing of the passions; subjection of the passions; the death of a part of a living body (see INFLAMMATION). MOR'TIFYINGLY, ad. *-lĭ*.—SYN. of 'mortification': chagrin; shame; trouble.

MORTIFY, v. *mŏr'tĭ-fī* [see MORTIFY 1]: in *Scots law*, to bequeath by will lands or money for certain specific purposes, religious or charitable, to trustees, or to a religious society, which bequests are then said *to be made dead*—that is, they cannot be alienated or transferred as property held in private hands. MOR'TIFYING, imp. MOR'TIFIED, pp. a. *-fīd*, left by will to a corporation for charitable purposes. MOR'TIFIER, n. *-fī-ĕr*, one who thus bequeaths property. MOR'TIFICA'TION, n. *-kā'shŭn*, the lands, houses, or money thus bequeathed: see MORTMAIN, which is the English equivalent for the Scotch MORTIFICATION. MASTER OF MORTIFICATIONS, a Scotch burgh functionary who has the charge of all charitable bequests under the corporation.

MORTIS CAUSA DEED, *mawr'tĭs kaw'za*, in Scotch Law: deed made with a view to taking effect on the death of the maker. Since in Scotland land cannot be conveyed by will, as in England, it is necessary to execute an ordinary deed of conveyance, and to reserve the maker's liferent, and to keep it in his own possession until his death—i.e., to suspend its effect during the life of the granter.

MORTISE, n. *mŏr'tĭs* [F. *mortaise*, a mortise: comp. L. *morsus*, a biting, a catching fast: also comp. Ar. *murtazz*, fixed in the mark, said of an arrow]: the hole



Mortise and Tenon:
a, mortise; *b*, tenon.

cut in one piece of wood to receive the *tenon* [from Fr. *tenir*, to hold] or projection by which another piece is made to hold it: V. to cut or make a mortise in. MOR'TISING, imp. MOR'TISED, pp. *-tĭst:* ADJ. joined by a

mórtise and tenon. MORTISE AND TENON, form of joint in carpentry. The tenon is a projection, generally rectangular in form, on the end of a piece of wood, cut so as to fit exactly into a deep groove (called the mortise) cut in another piece, so that the two are united at a required angle. The framing of doors, shutters, and such pieces of joinery, is usually fitted together with mortise and tenon joints.

MORTLING: see MORLING.

MORTMAIN, n. *mŏrt'mān* [F. *mort*, dead; *main*, hand —from L. *mors*, death; *manus*, the hand]: *originally*, the transfer or conveyance of land to an ecclesiastical body, being, as it were, a *hand* which could never part with it again; in *law*, possession of lands or tenements in *dead hands*, or such as cannot alienate, as of a corporation or fraternity. STATUTES OF MORTMAIN, statutes in England, whose object is to prevent priests and others from importuning a dying man to convey his land for charitable purposes. Hence, though a person can, till the last hour of his life, if possessing sufficient knowledge of what he does, devise by will all his land to individuals absolutely, it is otherwise if he intend to give the land to trustees for a charitable purpose, e.g., to build a church or school or hospital. The statute of mortmain, 9 Geo. II. c. 36 (1736)—reciting that public mischief had greatly increased by many large and improvident dispositions made by languishing and dying persons to charitable uses, to take place after their deaths to the disinherison of their lawful heirs—enacted, that in future no lands or sums of money to be laid out in land should be given to any person or body, unless such gift or conveyance should be made or executed in presence of two witnesses 12 months before the death of the donor or granter, and be enrolled in the court of chancery within six months after the execution. Therefore, a person on death-bed cannot in England give land, or money to buy land, for a charitable purpose; and the property given at least 12 months before the death of the giver must be completely alienated, so that he has no further control over it. The deed must have a present operation, and must not reserve any life-interest to the donor; it must be done at once and forever. The policy of this statute has sometimes been questioned, and several well-known modes of evading the statute have been adopted from time to time. The act has been held to apply only to land locally situated in England; and hence, if the land is in Scotland, or the colonies, or abroad, a will conveying it for charitable purposes will receive effect. In Scotland, the mortmain act had no application: see DEATH-BED: INTESTACY.

In the United States, statutes of mortmain have been enacted in only a very few states and to a very limited extent.

MORTON, *mawr'ton*, HENRY, PH.D.: b. New York, 1836, Dec. 11. He graduated from the Univ. of Penn. 1857, and took an advanced course in chemistry. After filling various minor positions he became 1869, prof. of chemistry in the Univ. of Penn. The following year he accepted the presidency of the Stevens Institute of Technology, Hoboken, N. J. He was one of the founders of the Dental College in Philadelphia, and was prominently connected with the Franklin Institute of that city. For several years he was a member of the light-house board. He made the lithographic drawings of the inscription on the Rosetta Stone, has attracted wide attention as a lecturer on light, and has written many valuable scientific papers.

MOR'TON (JAMES DOUGLAS), fourth Earl of, Regent of Scotland: 1530–1581, June 2; b. Dalkeith; second son of Sir George Douglas of Pittendriech. In 1553 he succeeded, in right of his wife, Elizabeth, daughter of the third earl, to the title and estates of the earldom. He early favored the Reformation, and 1557 was one of the original Lords of the Congregation. Sworn a privy councilor 1561, he was appointed lord high chancellor of Scotland, 1563. Having been one of the chief conspirators against Rizzio, the Italian sec. of Queen Mary, on his assassination, 1566, he fled with his associates to England, but, through the interest of the Earl of Bothwell, soon obtained his pardon from the queen. Though privy to the design for the murder of Darnley, on the marriage of the queen to Bothwell, he joined the confederacy of the nobles against her. He was present at Carberry Hill, when Bothwell parted from the queen, and after Mary's imprisonment in the Castle of Lochleven, he was restored to the office of high chancellor, of which he had been deprived, and constituted lord high admiral of Scotland. On the death of the Earl of Mar, 1572, he was elected regent of the kingdom. His rapacity and avarice made him obnoxious to many of the nobles, and as the young king, James VI., desired to assume the reins of government, Morton resigned the regency 1578. Subsequently obtaining possession of the castle of Stirling, with the person of the king, he recovered his authority, but was accused of participating in the murder of Darnley, and, being tried and condemned, was beheaded at Edinburgh.

MOR'TON, JAMES ST. CLAIR: 1829, Sep. 24—1864, June 17; b. Philadelphia. He graduated from West Point 1851, and after various promotions became 1855, assistant-prof. in that institution. In 1860, he led the expedition sent by congress to explore for a railroad route in Central America. He was afterward engineer of the Washington aqueduct, had charge 1861 of the fortification of Tortugas, and was promoted captain. The following year he was chief engineer first to the Army of the Ohio, and then to the Army of the Cumberland; 1862, Nov., he was promoted brig.gen. vols. He intrenched Murfrees-

borough, Tenn., served in several battles, was wounded at Chickamauga, and brevetted col. for gallantry in that action. In the Richmond campaign, 1864, he was with the 9th army corps as chief engineer, and was killed while leading his troops at the attack on Petersburg, Va. He had published several works relating to engineering and fortification. After his death he was brevetted brig.-gen. in the U. S. army.

MOR'TON, JOHN: 1724–1777, Apr.; b. Ridley, Penn. He was appointed justice of the peace 1764, was in the state assembly several years, and was speaker of that body 1772–75. He was a member of the Stamp Act Congress 1765, was successively sheriff of the county, presiding judge of the court of common pleas, and judge of the supreme court of the province. He was in the Continental Congress 1774–76, and earnestly advocated the adoption of the Declaration of Independence. On his death-bed he referred to his signing of that instrument as 'the most glorious service that I ever rendered my country.' He died at Ridley, Pennsylvania.

MOR'TON, LEVI PARSONS, LL.D.: b. Shoreham, Vt., 1824, May 16. He was employed in a country store, went to Boston, and 1850 became member of the firm of Beebe, Morgan & Co. In 1854 he founded in New York the firm of M. & Grinnell; and 1863, in the same city, established the banking-house of M., Bliss & Co., and a similar house in London under name of M., Rose & Co. These firms have sometimes acted as financial agents of the U. S. govt. M. was elected member of cong. 1878, and re-elected 1880. He declined 1880 the republican nomination for vice-pres., was minister to France 1881–85, received for the people of the United States the Bartholdi statue, and was elected vice-pres. of the United States 1888.

MOR'TON, NATHANIEL: 1613–1685, June 16; b. Leyden, Holland. When he was 10 years old his parents brought him to the Plymouth colony, where his father soon afterward died, and he became a member of the family of his uncle, Gov. Bradford. He soon became of great assistance in the management of public business, was elected sec. of the colony 1647, and annually re-elected until his death, 38 years later. In accordance with the wishes of the commissioners of the united colonies he compiled the first history of the settlements. This was published 1669, with the title, *New England's Memoriall, or a Brief Relation of the most Memorable and Remarkable Passages of the Providence of God manifested to the Planters of New England;* and its accuracy was fully attested by eminent men of the colony. Several later editions have appeared. He wrote occasional poems and a *Synopsis of the Church History of Plymouth.* He died at Plymouth, Mass.

MOR'TON, OLIVER PERRY: 1823, Aug. 4—1877, Nov. 1; b. Saulsbury, Ind. When 15 years of age he was apprenticed to his brother, who taught him the trade of hatter, but after working four years he left the shop and obtained an education. After studying two years at Miami Univ., he become a student in a law office at Centreville, Ind., and 1847 commenced practice in that town. He rose rapidly in his profession, was elected judge 1852, and on the expiration of his term a year later he went to a law school in Cincinnati, where he remained a year. The attitude of the democrats toward slavery caused him to leave that party. He joined the movement which resulted in the formation of the republican party, and was its first candidate for gov. of Ind. During the canvass he showed great ability, but was defeated at the polls, and resumed his legal practice. He was elected 1860 lieut.gov. of the state, and on the election of Gov. Lane to the U. S. senate he became gov. 1861, Jan. 16. He vigorously opposed the secession movement, and made preparation for the conflict which he believed to be at hand. During the civil war he was one of the most energetic and efficient supporters of the Union cause in the country. A secret society was arranged 1864 for his assassination and for a general uprising, but he promptly arrested the leaders and averted the threatened disasters. He was elected gov. 1864 by a large majority, resigned 1867 to become U. S. senator, and was re-elected to the senate 1873. He declined the office of minister to England. In 1865, he was stricken with paralysis, and was never able to walk again, but he remained one of the most brilliant orators and leaders of the republican party till his death. He died at Indianapolis.

MOR'TON, SAMUEL GEORGE, M.D.: American physician and ethnologist: 1799, Jan. 26—1851, May 15; b. Philadelphia; son of an Irish emigrant. He studied medicine in Philadelphia, Edinburgh, and Paris, and 1824 settled in Philadelphia. He contributed papers on physiology and craniology to scientific journals. His endeavor was to find a scientific basis for the doctrine of the original diversity of mankind. In 1839, he was appointed prof. of anatomy in the Pennsylvania Medical College, and published his great work, *Crania Americana*, based on his collection of 867 classified skulls. In 1844, he published *Crania Ægyptiaca*, based on the collection of George R. Gliddon; and 1849, his last work, *An Illustrated System of Human Anatomy, Special, General, and Microscopic*. He died at Philadelphia. See the Memoir of M. prefixed to Nott and Gliddon's *Types of Mankind* (Philadelphia 1854).

MOR'TON, THOMAS; 1575 (or about 1590)—1646; b. England. He was a London lawyer who came 1622 at the head of Weston's colony to settle in Massachusetts. He soon returned to England, but came back 1625 with Capt. Wollaston (another adventurer), and a party of emigrants. He founded Mount Wollaston, now Brain-

tree, Mass. His conduct and his avowed principles were in defiance of the Puritan seriousness, and made him obnoxious to the colonists. He was arrested, sent to England, and the name of his settlement was changed to Dagon. He returned, was again sent back, but for the fourth time came to Mass. He was imprisoned a year for publishing *The New England Canaan*, a description of the country and a satire on Puritan customs. He died at Agamenticus, Maine.

MOR'TON, WILLIAM THOMAS GREEN: 1819, Aug.—1868, July 15; b. Charlton, Mass. He tried business life in Boston, but, not succeeding, went to Baltimore 1840, where he studied dentistry. He returned to Boston 1841, attended medical lectures, studied chemistry under Dr. Charles T. Jackson, and introduced a new material for fastening false teeth to gold plates. He experimented with various agents to produce insensibility to pain during the extraction of teeth, and 1846, Sep. 30, succeeded, by the use of sulphuric ether, in rendering a patient unconscious while a bicuspid tooth was drawn. Other successful experiments were made, and on Oct. 16 of the same year ether was publicly administered in a surgical operation at the Mass. general hospital. It soon came into extensive use as an anæsthetic. M. obtained a patent for the preparation under the name of *Letheon;* but secured little pecuniary benefit therefrom. His claim as discoverer of an anæsthetic agent in surgery was contested by Dr. Jackson, Horace Wells, and others; his business in Boston was ruined, and he repeatedly sought relief from congress in vain. The French Academy of Sciences awarded him a prize of 2,500 francs, he received decorations from Russia and Sweden, and numerous testimonials from the medical profession in this country. He died in New York. A monument in his honor was erected 1868 in the Boston Public Garden.

MORTUARY, n. *mŏr'tū-ă-rĭ* [L. *mortuārĭŭs*, belonging to the dead—from *mor'tŭŭs*, a dead person]: a gift, claimed by, and due to, the minister in very many parishes, on the death of a parishioner; a gift left by a man at his death to his parish church; a burial place: ADJ. pertaining to the burial of the dead. MORTUARY URN, a vessel to contain the ashes of the dead.

MORUS, n. *mō'rŭs* [L. *morus:* It. *moro*]: the mulberry-tree; the black mulberry is *Morus nīgra*, and the white mulberry *Morus alba*, ord. *Morācĕæ.*

MOSÆSAURUS, n. *mŏs'ē-saw'rŭs*, or MOS'ASAU'RUS [L. *Mosa*, the river Meuse, on which *Mæstricht* is situated; Gr. *saurus*, a lizard]: in *geol.*, a gigantic marine reptile of the Upper Chalk, allied to the crocodile—so called from its first being found in the Mæstricht beds.

MOSAIC, a. *mō-zā'ĭk*, or MOSA'ICAL, a. *-ĭ-kăl:* pertaining to *Moses* or his writings. MOSA'ICALLY, ad. *-lĭ.*

MOSAIC, n. *mō-zā'ĭk*, or MOSAIC-WORK [mid.L. *musivum*, *musāĭcŭm*, or *mosāĭcŭm opus*, mosaic-work: F. *mosaïque*, mosaic—origin not known, but supposed to be from Gr. *mouseion*, a place dedicated to study and the muses, a museum]: designs formed with small pieces of colored glass, stones, or pebbles, cemented on a ground of stucco or inlaid upon metal; the art of so designing. MOSAIC, a., or MOSA'ICAL, a. *-zā'ĭ-kăl*, relating to or composed of mosaic-work. MOSA'ICALLY, ad. *-lĭ*. MOSAIC-GOLD, a fine gold-colored variety of brass; an alloy of copper, zinc, and gold: see TIN.—*Mosaic* is the art of producing artistic designs by setting small square pieces of stone or glass of different colors, so as to give the effect of painting. The origin of the art is obscure; but it was much practiced by the Romans, especially for ornamental pavements, specimens of which are almost always found whenever the remains of an old Roman villa are discovered. Under the Byzantine empire, it was much used for the ornamentation of churches, in which it formed much of the wall-decoration. It was re-introduced into Italy for the latter purpose about the middle of the 13th c. by Andrea Tafi, who learned it of some Greek artists employed at Venice in decorating St Mark's. Since then it has been especially an Italian art, and to such wonderful perfection has it been brought that most minute pictures are produced by it. Within quite recent years, mosaics of surpassing beauty in design and material, have been produced by Russian artists in the Imperial Glass Manufactory of Russia; those shown in the Russian dept of the International Exhibition (1862) have probably never been surpassed. The pieces of glass of every shade of color are technically called *smalts*; they are generally opaque, and are set in cement in the same manner as tiles or pavement. In Italy there are two very distinct varieties of mosaic work—the Florentine and the Roman: the Florentine is formed entirely of pieces of stone or shell of the natural colors, and is limited in its application chiefly to floral and Arabesque designs: the Roman is made of the glass smalts mentioned above, and has so wide an application that most of the finest paintings of the best old masters have been copied in mosaic, and the pictures so taken form the almost imperishable decorations of the finest churches of Italy. The manufacture of the opaque glass or smalts for making the little square pieces called tesseræ, of which the pictures are composed, is a very important one, and is carried on in the Vatican, where 25,000 shades of the various kinds of colored glass are produced.

MOSA'IC WOOL, or WOOL MOSA'IC: application of the principle of mosaic-work to the production of woolen or worsted rugs and carpets, having a definite design or pattern, independent of the ordinary processes of printing and weaving. Many attempts in this direction have been made, chiefly on the continent: but the most successful is that of Messrs. Crossley, in whose extensive

carpet factory at Halifax, England, the mosaic wool is produced as a regular department of manufacture.

In the first place, well-spun worsted threads are dyed to every color and almost every shade or tint, amounting to a hundred varieties in all. An artist prepares a full-sized drawing of the pattern or design, ruled all over with cross-lines: this is copied on lined paper by girls, each of whom takes as much of the pattern as will fill a square foot. A workman (or woman) having a good eye for color, examines each square piece of drawing in detail, and selects the proper color of thread suitable to every portion of it; the threads are a little over 200 inches long each, or about 17 ft. and are numerous enough to pack closely together into a mass of one sq. ft. in width and depth. A strong iron framework, 17 ft. long, is so arranged that all these threads can be stretched on it horizontally, tied at one end, and weighted with 4 lbs. to each thread at the other. Girls, under the direction of the workwoman who selects the colors, arrange these threads one by one, tying them at one end, weighting them at the other, and supporting them on a steel bar in the middle. This being done, the mass of 17 ft. in length is cut up into blocks 20 inches long each, for convenience in after-operations. All these processes are for one sq. ft. only of the pattern, and they have to be repeated as many times as there are sq. ft. in it. Supposing a rug 6 ft. by 2, with a lion, tiger, or other device occupying the greater part of the surface: there must be 12 masses prepared, and as each mass contains 50,000 threads, there will be 600,000 altogether. Blocks are cut from each mass, and are placed in an iron box or frame, side by side; thus forming a quadrangular solid 6 ft. by 2, and 20 inches deep, with the threads arranged *vertically*. Now, to convert this into a great number of separate rugs, the pattern of which is seen represented on the upper surface, formed by the ends of the colored threads, india-rubber is dissolved in camphine to the consistence of carpenters' glue, and brushed well over the top, so that every individual thread shall receive its portion; this being dried, a second coating is applied; and afterward a third. A backing of canvas, or of some kind of strong cloth, is cemented down upon the mass of threads by a glue of the same kind, and is scraped and rubbed until it adheres to every individual fibre. When dry, the mass of threads is raised up three-sixteenths of an inch, by a screw acting upon a movable bottom to the box. A very keen circular cutter, 12 ft. in diameter, and rotating 170 times per minute, quickly severs a horizontal slice three-sixteenths of an inch thick, the box of threads being caused by an endless screw to travel onward to meet the cutter. This slice, when turned up, presents the picture complete, in a beautifully soft nap or pile of woolen threads, supported by a canvas or woolen backing. It is a mere question of handwork to convert this into a rug, carpet, coverlet, or wrapper of any kind. A second repetition of the same pro-

cesses converts another slice into a second rug; and so on, until the mass of 20 inches in depth has been cut up into about a hundred slices, each forming one rug. As the blocks of 20 inches were originally cut from a mass of 200 inches, the whole mass produces about a thousand rugs, all exactly the same pattern. It is this power of repetition which makes the process pay; for the great preparatory labor of selecting and arranging (say) 600,000 distinct threads could not otherwise be compensated for.

MOSASAURUS, n. *mŏs'ă-săw'rŭs:* see MOSÆSAURUS.

MOSAYLIMA (Little Moslem): one of the most important rivals of Mohammed, advancing his claim about 630. He belonged to the clan Dûl, a division of the tribe of the Bani Hanifah, of Yamâma in Nedjed. The traditions about him are contradictory and legendary. He seems to have risen to a certain eminence in his tribe, probably at first as a religious teacher only, before Mohammed assumed his prophetical office. He was known among his friends by the name Rahmân, the Benignant or Merciful; a term which Mohammed adopted as a designation of God himself. This word, which is Aramaic, was a common divine epithet among the Jews, from whom Mohammed took it, together with a vast bulk of dogmas, ceremonies, and legends. It was in the 9th year of the Hedjrah that M., at the head of an embassy sent by his tribe, appeared before Mohammed, to settle certain points of dispute. Shortly after this event, M. openly professed himself a prophet, as well as Mohammed. The latter sent a messenger to him, as soon as he heard of this, to request him to reiterate publicly his profession of Islam. M.'s answer was a request that Mohammed should share his power with him. 'From Mosaylima, the Apostle of God,' he wrote, according to Abufeda, 'to Mohammed, the Apostle of God. Now let the earth be half mine, and half thine.' Mohammed speedily replied: 'From Mohammed, the Apostle of God, to Mosaylima, the liar. The earth is God's: He giveth the same for inheritance unto such of his servants as He pleases, and the happy issue shall attend those who fear Him.' Yet notwithstanding these testimonies, of probably late dates, it seems perfectly certain that Mohammed made very great concessions to his rival—concessions that point to his having secretly nominated M. his successor, and that he by this means bought M.'s open allegiance during his life-time. It was not a question of dogmas, though they each had special revelations, but a question of supremacy, which was thus settled amicably.

When Mohammed was at the point of death, he desired to write his will. Whatever he may have wished to ordain, is uncertain; it is well known, at all events, that his friends did not obey his order, and refused to furnish him with writing-materials, very probably because they did not like to be bound by his last injunctions. Sprenger supposes that he wished formally to appoint M. his successor, and that it was rthis which his surrounding ela-

tions feared. M. then openly declared against Islam, and many parodies of the Koran sprang up in the Nedjed, ascribed to him. In the 11th year of the Hedjrah, it at last came to an open breach between the two rival powers. Abu Bekr, the caliph, sent Khalid, 'the Sword of the Faith,' with a number of choice troops, to compel M. to submission. M. awaited the enemy at Rowdah, a village in the Wadi Hanifah. So formidable indeed was M.'s force, that Khalid is said to have hesitated for a whole day and night before he undertook an assault unanimously disapproved of by his council. On the second morning, however, he advanced, and in a battle which lasted until the evening, gained the victory, with fearful losses. M. fell by the hands of a negro slave, and his head was cut off by the conqueror, and placed at the head of a spear, to convince both friends and foes of his death. Khalid then advanced to the slain prophet's birthplace, to slay all its inhabitants. They, however, by a clever stratagem concluded an honorable peace, but had to embrace Islam. The Mosleymian 'heresy' was thus stamped out, and only a few scattered remnants of the new faith contrived to escape to Hasa and Basrah, where they may have laid the foundation of the later Karmathian creed.

It is extremely difficult to come to any clear notion of M.'s real doctrines, as all the accounts of them come from victorious adversaries, who have not hesitated to invent most scandalous lies about his character, though the truth seems to be that M. was of much higher moral standing than Mohammed himself. Mr. Palgrave considers that his religion had a socialist tendency, rejected fatalism, contained an idea of incarnation, and invested its preachers and teachers with a semi-mediatorial character; but these are mere conjectures.

MOSBY, *mōz'bĭ*, JOHN SINGLETON: b. 1833, Dec. 6, Va. He was a lawyer, but at the opening of the civil war entered the Confederate cavalry. In 1862 he was invited by Gen. Stuart to act as a scout, and he soon organized a band of rangers and commenced the 'guerilla' warfare which made him the dread of the Northern forces. Though several times wounded, he always eluded his pursuers. After the war he practiced law in Warrenton, Va. He advocated the election of the republican candidates for pres., 1872 and 1876, and was U. S. consul at Hong Kong six years, after which he practiced law at San Francisco. He has lectured on *Stuart's Cavalry*, and published *War Reminiscences*, 1887.

MOSCHATEL, n. *mŏs'kă-tĕl'* [Gr. *moschos*, a tender shoot: L. *muscus*, moss or musk]: a small British plant having pale-green flowers, and whose leaves and flowers smell like musk; the *Adoxa moschatelli'na*, ord. *Cap'rifoliăcĕæ*.

MOSCHUS, n. *mŏs'kŭs* [Gr. *moschos;* L. *muscus*, musk]: a genus of animals; the musk-deer; the musk used as a remedial agent by homeopathists. MOSCHIDÆ, or MOSCHINÆ, family of ruminant quadrupeds (see MUSK, or MUSK-DEER).

MOSCOW, *mŏs'kō:* important govt. of central Russia, immediately s. of the govts. of Tver and Vladimir; 12,552 sq. m. The surface is level, with the exception of a tract in the s.w., which is elevated. It is watered by the Moskva and the Kliazma, while the Oka forms a portion of its s. boundary. The soil, principally clayey, with some sandy and stony tracts, is, on the whole, unfertile, and barely supplies local consumption. Few of the govts. of Russia, however, equal that of M. in manufactures and general industry. It contains numerous cloth, silk, brocade, chintz, paper, and other factories. China-ware is manufactured from the clay in the district of Gjelsk. Many of its villages carry on special branches of manufacture, e.g., of pins, glass beads, and small looking-glasses for Asia. White limestone is quarried, and is much used for building in the capital; yellow marble is quarried on the banks of the Oka. Peat is extensively used as fuel in the factories. Among the places historically celebrated are the monastery of St. Sergius, founded by one of the first Muscovite princes, and famous for its silver shrine, said to be the richest in the world; and the village of Borodino (q.v.).—Pop. of govt. (1880) 1,938,358.

MOS'COW (Russ. *Moskwá*): city, ancient cap. of Russia, former residence of the Czars; in a highly-cultivated and fertile district on the Moskva, 400 m. s.e. of St. Petersburg, with which it is in direct communication by railway; lat. 55° 40′ n., long. 37° 33′ e. Previously to its being burned 1812, M. was perhaps the most irregularly built city in Europe, and that distinction to a great extent it still retains; for, as the main object in 1813 was to build speedily, the streets rose again on the old model, undulating and crooked, and consisting of alternating houses, the most varied in character and pretensions. Many improvements have, however, been made recently. Wide streets have been laid out, and stately buildings erected; gas-pipes have been laid along the streets; letter-boxes are placed at frequent intervals; the Romanzoff Place, formerly so dirty, has been converted into a splendid square, with an ornamental garden, and the old obelisk, the former monument of the Place, standing in the centre, with water fountains on each side. The general view of the town, especially that obtained from an eminence on its s. side called the Sparrow Hills, is eminently original and picturesque. Its hundreds of churches and convents, surmounted by gilt or variously-colored domes; its gardens and boulevards; and, above all, the high walls and crowded yet stately towers of the Kreml or citadel, produce a most striking effect. It is indeed said to be the most remarkable architectural

scene in the world. The Kreml, on the n. bank of the river, forms the centre of the town, and around it, with a radius of about a mile, is a line of boulevards, extending, however, only on the n. side of the river. Outside of this line, and concentric with it, is another line of boulevards, with a radius of a mile and a half; while beyond all, and forming the girdle of the city, is the outer rampart, with a circumference of 26 English m. The Kreml comprises the principal buildings, as the Cathedral of the Assumption of the Virgin, founded 1326, a small but gorgeously-decorated edifice; the Cathedral of the Archangel Michael, containing the tombs of all the Czars down to the time of Peter the Great, who changed the royal burial-place to St Petersburg; the Church of the Annunciation, the floor of which is paved with jaspers, agates, and carnelians of various shapes; the tower of Ivan Veliki, 200 ft. in height, surmounted by a magnificent gilded dome, from which, as from all the domes of M., rises the 'honorable cross;' the Czar Kolokol (king of bells), greatest bell in the world; several palaces, and collections of ancient arms and other antiquities; the arsenal, surrounded by the splendid trophy of 850 cannons, taken from the French; and the senate. The walls of the Kreml are surmounted by 18 towers, and pierced with 5 gates. In the town, the chief buildings are the cathedral of St. Vasili, remarkable for peculiar architecture; the Gostinoi Dvor, or Bazaar; and the Exchanges. The Temple of the Savior, commenced 1812, to immortalize the repulse of the French invasion, was finished 1881. It is resplendent with gold and marble; the gilding of the fine cupolas alone cost 100,000 silver roubles. The University of M., the first in Russia, founded 1753, is attended by 1,800 students, and contains a library of 160,000 vols., museums of nat. history, and a botanical garden. As intermediate educational establishments between the parish schools and the university, there are 5 high schools or gymnasia for males, and 3 for females; special establishments are the technological, the agricultural, the oriental, 2 commercial, and 3 military schools. There are several learned societies in M., which is also the seat of a metropolitan, one of the three highest dignitaries of the Russian Church. The public museum and library, removed from St. Petersburg 1861, occupies a large and handsome building, formerly a palace, is rich, especially in ancient Slavonic MSS., and has about 250,000 vols.

M. communicates by railway with St. Petersburg, Nijni-Novgorod, Koslov, etc. It is the seat of an extensive manufacturing and commercial industry; it imports largely, and has considerable export trade, especially with Asia. Its trade is chiefly in hides, leather, oils, wool, grease, isinglass, wax, honey, feathers and down, potass, soap, iron and copper; cotton from Asia, silks from Georgia, Persia, and Bokhara; Caucasian madder, home and Turkish tobacco, furs, tea, chemicals, and all

the products of Russian manufacture, of which M. is the actual centre. The chief manufactures are woolen and worsted goods, silks, brocades, dyeing, printing, tanning, and skin-dressing, iron, copper, and silver works, and chandleries.

M. is of ancient origin for a Russian town. Its site was bought by Yuri Dolgoruki, in the 12th c., and a fortress built. In the 14th c., not only had it become the cap. of the Russian religious world, owing to the residence there of the metropolitan, but it had also become the actual cap. of Muscovy. In 1368, 70, and 72, it suffered from the inroads of the Lithuanians; 1381, it was sacked by the Tartars. 1415–1501, it was, on four separate occasions, partially destroyed by fires; and it was burned to the ground by Devlet-Girey, Khan of the Crimean Tartars, 1571. It was taken by the Poles 1610, and remained in their possession till their expulsion by the Russians under Minin and Pojarsky 1612. In 1682, 89, and 98, it was the theatre of the revolts of the Strelitz. 1812, Sep. 14—Oct. 24, it was in the hands of the French. M. has been growing rapidly in recent years. Pop. (1880) 611,970; (1884) 753,469.

MOSELLE, n. *mō-zĕl′:* a white wine from *Moselle,* in Germany.

MOSELLE′: formerly a frontier dept. in n.e. France—pop. (1866) 452,157, but the greater part of it was taken by Germany after the war of 1870–1, and the small portion left to France was joined to the dept. of Meurthe.

MOSELLE, *mō-zĕl′* (Ger. *Mosel*): river, affluent of the Rhine, rising in the Vosges Mountains, France, about 2,260 ft. above sea-level, not far from the sources of the Saône. Its course is n.w. as far as Pont-à-Mousson, in the dept. of Meurthe, where it becomes navigable; then n. to Thionville, near the French frontier; after which it proceeds n.e. (latterly, with many zigzag picturesque windings), through Luxemburg and Rhenish Prussia, joining the Rhine at Coblentz; total length more than 330 m. On its way, it passes the towns of Remiremont, Epinal, Toul, Pont-à-Mousson, Metz, Thionville, and Treves. From Metz to Treves it flows through a broad valley, inclosed by rounded vine-bearing hills. Its principal tributaries are the Meurthe, the Seille, and the Sarre on the right: the Orne, the Sure, and the Kyll on the left. The wines produced in the basin of the Moselle are noted for lightness and delicate aromatic flavor. The inferior kinds are liable to acidity.

MOSES, *mō′zĕz* (Heb. *Môsheh;* LXX. and Vulg. *Moyses;* ? Egypt. *Mes* or *Messou;* Copt. *Mo-ushe*, i.e., drawn out of the water): prophet, liberator, and lawgiver of the Israelites: about B.C. 1397–1277 (the chronology is confused, and these dates seem most probable from recent investigations; other conjectural dates range between the above and B.C. 1728–1608; Usher's having had most acceptance, 1571–1451); b. Egypt (? Tanis or Zoan), during the period of Israel's hard bondage; son of Amram and Jochebed, both of the tribe of Levi. The tale of his birth and early education has, by tradition (Manetho, Philo, Josephus, the Midrash, etc.), received an extraordinary and legendary character far other than that found in Exodus i., ii., etc., though the few great features are on the whole the same in all. And there is no reason to doubt the truthfulness of an account which shows us M., like many other supreme benefactors and 'suns' of mankind, struggling against an apparently adverse fate, and even for his life, from the instant of his birth. The well-known Biblical narrative, to which late traditions (in Philo, Josephus, the Fathers, etc.) have supplied questionable names and dates, is that M.'s mother, unable to hide the child—which by royal edict was to have been drowned at its birth—longer than for the space of three months, put it into a basket of papyrus, and hid it among the Nile rushes, while Miriam, his sister, watched it from afar. The king's daughter (Thermuthis, or Merris?), coming down to bathe in the river, observed the weeping child, and was so struck with its beauty, that she allowed Miriam to fetch a Hebrew nurse, and Miriam brought her mother, Jochebed. Grown up, M. was sent to the Pharaoh's palace as the adopted son of the princess, and here seems to have had not only princely rank, but also a princely education. It is supposed that the king or Pharaoh was Rameses II., and that his palace was then at Tanis. M. is said, in the traditions, also to have become a priest, under the name of Osarsiph or Tisithen, and to have been a mighty adept in all the sciences of 'Egypt, Assyria, and Chaldea;' to have led Egyptian armies against the Ethiopians, defeated them, and pursued them to their stronghold, Saba (Meroe); this place being delivered into his hands by Tharbis, the king's daughter, whom he subsequently married. These traditions are of no authority. The Bible contains nothing whatever about his youth and early manhood, beyond the few points above noted as Biblical, except that 'he was instructed in all the wisdom of the Egyptians, and was mighty in his words and works' (Acts vii. 22); and that 'by faith, when he was grown up, he refused to be called the son of Pharaoh's daughter' (Heb. xi. 24–26). He reappears in Exodus first as the avenger of a Hebrew slave, cruelly treated by an Egyptian overseer. Threatened by one of his own people who knew of this bloody act, he escapes into Midian, in the s.e. part of the peninsula of Sinai, where he is hospitably received by Jethro, the priest, and married his daughter, Zipporah. He

stayed many years in Midian, tending the flocks of his father-in-law. This most sudden transition from the brilliant and refined life of an Egyptian court, in which he had been brought up a prince, to the state of a poor, proscribed, exiled shepherd, together with the influences of the vast desert around him, must, in M.'s mind, have produced a singular revolution. The fate of his brethren went now to his heart with greater force. The ancient traditions of his people, and the promises of Jehovah to his forefathers; that they should become a mighty nation, and possess the ancient heritage of Canaan, rose in grandeur before his mind. The God of Abraham, announcing himself by the name Jehovah (I am that I am), appeared to him while his mind was occupied with such thoughts, and commissioned him as the liberator and leader of his people. A new king had succeeded in Egypt, his old enemies were either dead or had forgotten him, and M. returned to Egypt. Together with Aaron, his brother, the man of small energy but of fine tongue, he consulted about the first steps to be taken with the king as well as with their own people:—both of whom treated them at first with suspicion or contempt. The new Pharaoh was probably Menephthah I., son of the Pharaoh of the oppression, Rameses the Great.

After ten distinct plagues (more or less akin to natural phenomena peculiar to Egypt), the last being the death of all the firstborn, Pharaoh consented to let his slaves go free, 'that they might serve their God.' M., himself led of God, led Israel forth across the Red Sea through a way prepared by terrible Divine power. M. was at this time probably about 80 years of age. Calmness, disinterestedness, patience, perseverance, meekness, coupled with keen energy, rapidity of action, unfailing courage—'wisdom in council and boldness in war'—gave M. his control over the vast horde of hundreds of thousands half-brutalized and half-heathen slaves who knew no law in their newly-acquired liberty, and who were quick to murmur and to rebel on any or no provocation. Beside the hostile Bedouin tribes whose territories the new emigrants approached, the jealousy of certain elders fostering seditions within, added to his burdens and dangers; and his own brother Aaron, whom he had made his representative during his temporary absence on the Mount of Sinai, assisted in the fabrication of an idol. M. assumed his sacred office as legislator in the third month after the Exodus, when, after many hard and trying marches and counter-marches—from Goshen to Succoth; thence, by a *detour*, to Etham, Pi-hachiroth, through the Red Sea, to the Desert of Shur, Marah, Elim (Wadi Gharandel), Desert of Sin (Wadi Mocatteb, or Wadi Al-Sheikh), Dophka, Alus, Raphidim (near the Makkad Sidna Mousa)—made more trying by want of food and of water, by encounters with the Amalekites, having arrived near the Mount of Sinai, he made the people encamp all round, and ascended alone the summit of the mountain. The tendency of the holy Law then revealed in majesty

from God through M., and of the later law of doctrine, duty, and ceremonial observances, was to make the Hebrews a people 'consecrated to Jehovah,' 'a holy people, and a kingdom of priests,' i.e., a people of equals both before God and before the Law. Three distinct parts compose this Mosaic Constitution: the doctrine with respect to God and His attributes; the 'Symbolical' Law, as the outward token of His Doctrine; and the Moral and Social Law. The Decalogue forms the moral core of the whole—declaring the existence of Jehovah as the absolute and only God; proclaiming the liberation of the people; and prohibiting Polytheism, and the Representation of the Divinity by visible images (commandments I.–III.); while the institution of the Sabbath, the symbol of creation and the Creator, forms the basis of all religious observances (commandment IV.); and the remaining commandments (V.–X.) relate to the intercourse among the members of the human commonwealth; inculcating the honoring of parents; prohibiting murder, adultery, theft, false witness, coveting of others' goods. The groundwork of these regulations had indeed been a special inheritance in the family of the Abrahamites from the earliest times; but the vicissitudes of fortune, the various migrations, and the enormous increase of this family, and its mingling for generations with the surrounding idolaters, had obliterated nearly all traces of the creed and worship in the populace. The wisdom evinced even in the minor regulations of the Mosaic dispensation, in their adaptation to the peculiarity of the race, the climate, the political state of the country which they were to inhabit; in the hygienic regulations, and the rules for social and domestic relations; and, above all, the reiterated warning against mingling again with other nations, such as they found them in Canaan—the neglect of which warning subsequently brought national ruin—is traced to a direct influence of Jehovah, generally indicated by the words, 'Jehovah said unto Moses: . . . speak unto the children of Israel.' An ample Ritual, in connection with the Tabernacle, or constantly-visible symbol of a Divine Dwelling; the allegory of an ever-new covenant represented by Sacrifices, Prayers, Purifications, kept their supreme task of being priests and a holy people unceasingly before the eyes of the nation. The tribe of Levi (q.v.), to a certain degree acted in this respect as permanent representatives; and not to Moses's sons, but to his brother Aaron and his descendants, was intrusted the office of High-priest.

On the eve of entering into the promised land, the people broke out in open rebellion, and threatened, by a spontaneous return to the land of slavery, to undo the entire work of M.'s life. Convinced that they were not as yet fit to form a permanent commonwealth, the Liberator and Lawgiver had to postpone, for the long space of 40 years, the crowning act of his work; and, in fact, died on the border of the land of promise shortly before their entrance upon it. How these years of nomadic

journeying through the Desert (El-Tyh or Al-Tyh Beni-Israel) were spent, save in rearing up a new generation of a more manly and brave, as well as more 'civilized' stamp, we can only conjecture. All those who had left Egypt as men were doomed to die in the desert, either by a natural death, or by being suddenly 'cut off,' in consequence of their openly defying M., and, through M., Jehovah. The apparent lack of incidents during this period has furnished grounds for various speculations, some of which have sought to reduce it to a much shorter space. The testimonies of the Hebrew prophets and historians, however, are perfectly unanimous on the subject (Jos. v. 6; xiv. 10; Amos, ii. 10; v. 26; Ps. xcv. 10, etc), and modern criticism has mostly sustained the ancient record. On the first month of the 40th year after the Exodus, we find M. at the head of an entirely new generation of Hebrews at Kadesh, in the Desert of Phoran or Zin. Here his sister Miriam died. Here also, for the first time, M., seeing the new generation as stubborn and 'hard-necked' as their fathers, is recorded to have despaired of the Divine Providence; and his disobedience to the letter of the command given to him, 'to speak to the rock,' and his smiting it instead, is alleged as the reason 'that his bones too had to fall in the desert.' His brother Aaron died at Hor (near Petra, according to Josephus and St. Jerome), whither the Israelites had gone next. Not long afterward, M. once more had occasion to punish with relentless severity the idolatrous tendencies of the people (Baal Peor), thus showing that age had not relaxed his strong rule over the still half-savage and sensuous multitude. Having finally fixed the limits of the land to be conquered, and given the most explicit orders to Joshua, to Eliezer, and the chiefs of the ten tribes, respecting its division, he prepared the people for his own impending death. He recalled to their minds in most impressive language, their miraculous liberation from Egypt and no less miraculous preservation in the desert. Their happiness—their life—was bound up, he told them, in their loving and cleaving to Jehovah, and obeying His law communicated through Moses. A recapitulation of its principal ordinances, with their several modifications and additions, and reiterated exhortations to godliness, form the contents of his last speeches, which close with one of the grandest of hymns. The law was then handed over to the priests that he might instruct the people in it thenceforth; Joshua was installed as successor (while M.'s own sons passed into the obscurity of ordinary Levites); and he blessed the whole people. He then ascended the Mount of Nebo, whence he cast a first and last look upon the land toward which he had yearned for half a century, and on which his feet were never to tread. He died upon this mountain, 120 years old, but still in fulness of natural strength, according to the Scriptures, 'and no man knew his burial-place to this day'—so that neither his remains nor his tomb were desecrated by 'Divine honors' being superstitiously paid to them.

The non-biblical traditions as to the life of M. bear plain evidence of being growths and distortions of the narrative in the Pentateuch; though probably somewhat more of value may attach to the traditions of Manetho. On M.'s office as a 'prophet'—what was the special nature of his revelations, how far the doctrines promulgated by him were traditional among the Abrahamites, and how much of his laws is due to Egyptian influences; whether part of them was first inaugurated by later generations and ascribed to him, or whether others were never carried out at all—on these and similar questions which have been abundantly raised, especially in recent times, see the special works on the subject. For some of the more important points, see GENESIS: EXODUS: JEWS: PENTATEUCH: DECALOGUE: ETC.—The brief span of human history shows probably no other man of M.'s towering moral grandeur—even with all the deductions that the most daring criticism has yet proposed.

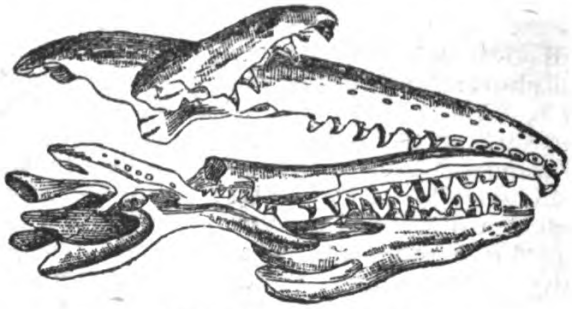
MOSHEIM, *mōs'hīm*, JOHANN LORENZ VON: distinguished church historian of Germany: about 1694–1755, Sep. 9; b. Lübeck. He studied at Kiel. In 1723 he became ordinary prof. of theology at Helmstedt, whence he was removed 1747 to a similar office in Göttingen. He died chancellor of the University of Göttingen. His theological works are numerous, among which are a work on Bible morality, *Sittenlehre der Heiligen Schrift* (new ed., continued by J. P. Miller, 9 vols. Helmst. 1770–78), and Discourses, *Heiligen Reden* (3 vols. Hamb. 1732, et seq.). But his most important contributions to theological literature are in ecclesiastical history, in which his *Institutiones Historiæ Ecclesiasticæ* (Helmst. 1755) is familiar as a work of great learning, fulness, and accuracy. It has been translated from the original elegant Latin into English and other languages. The best English translation is that by Dr. James Murdock (3 vols. New York 1832), of which there are many reprints. Besides this, M. is author of *Institutiones Historiæ Christianæ Majores* (Helmst. 1763); *De Rebus Christianorum ante Constantinum Commentarii* (Helmst. 1753); *Dissertationes ad Hist. Ecclesiasticam pertinentes* (2 vols. new ed. Altona 1767); and *Versuch einer unparteiischen Ketzergeschichte* (2 vols. Helmst. 1746–48). His position is that of liberal orthodoxy; yet he is essentially a historian or critic of doctrine, and deals more with the tenets of men than with the character and genius shining through them; hence, his *Church History* is inferior, not in accuracy, but in richness, interest, and suggestiveness, to that of Neander.

MOSKWA, *mŏsk'vâ*, Rus. *mosk-vâ':* river of European Russia; branch of the Oka, which is itself a branch of the Volga. It is famous for the great battle, called the battle of Borodino (q.v.), on its banks, 1812, Sep. 7, from which Ney (q.v.) obtained his title Prince of Moskwa. The M. rises in a marsh in the govt. of Smolensk, passes

close by the towns of Moshaisk and Svenigorod, passes through the city of Moscow, and joins the Oka near Kolomna, in the govt. of Moscow; total length about 290 m. Considerable commerce is carried on by boats on the M., and it is directly connected with the Volga by the *M. Canal.*

MOSLEM, n. *mŏz'lĕm* [Ar. *muslim*, a true believer: an orthodox Mohammedan; a Mussulman, which is a mere corruption of *muslim:* see MUSSULMAN: MOHAMMEDANISM.

MOSOSAURUS, *mŏs-ō-saw'rŭs* (MEUSE LIZARD): genus of huge marine lizards, whose remains occur in rocks of cretaceous age. Three species are known—one from the upper chalk of Sussex, a second from the cretaceous beds of N. America, a third from the Maestricht beds. This last (*M. Hofmanii*) was known first from a nearly perfect head dug out of St. Peter's Mount 1780, and

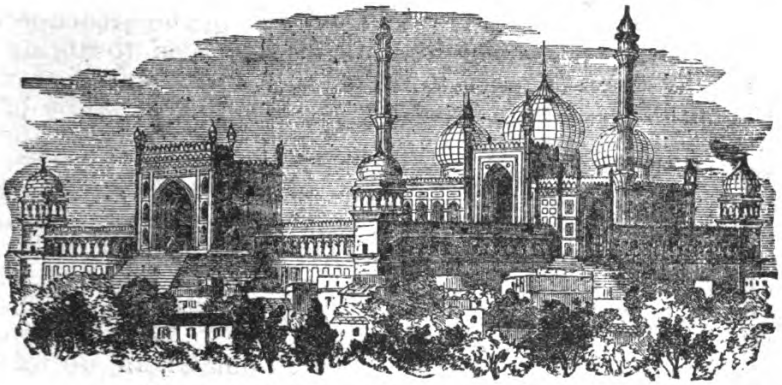


Head of Mososaurus.

popularly called the great animal of Maestricht. Originally the property of Hofman, it was taken from him, in virtue of some clause in their charter, by the ecclesiastical authorities of Maestricht, who, in their turn, were compelled to give it up to the victorious French army, and by them it was removed to Paris. It is said that the French cannoneers, preparing for the siege, had instructions not to point the artillery toward that part of the town in which the precious specimen was deposited. This head is four ft. in length, and the animal to which it belonged is estimated to have been 25 ft. long. The total number of the vertebræ was 133; they were concave in front and convex behind, and were fitted to each other by a ball-and-socket joint, admitting of easy and universal flexion; the sacrum seems to have been lacking. The limbs were developed into four large paddles, and these, with the comparatively short and strong tail, the bones of which were constructed to give great muscular power, enabled the animal to move quickly through the water in pursuit of prey. The jaws were furnished with a single row of strong conical teeth. Cuvier first showed the affinities of the animal. It is related most nearly to the modern monitor, but differs from all modern lizards in its peculiar adaptations for an ocean life and in its great size. The largest living lacertian is

only 5 ft. in length, and of this a large proportion is made up by the tail; the M., with its short tail, is estimated to have been at least 25 ft. long.

MOSQUE, n. *mŏsk* [F. *mosquée*—from Sp. *mezquita*, a mosque—from Ar. *masjid*, place of prayer]: Mohammedan house of prayer. The form of the oldest mosques (at Jerusalem and Cairo) is evidently derived from that of the Christian Basilica, the narthex being the origin of



Great Mosque at Delhi, from the Northeast.—From Fergusson's *Hand-book of Architecture.*

the court, with its arcade, and the eastern apses representing the principal buildings of the M. facing Mecca. The original forms became, however, entirely obliterated in the progress of Mohammedan architecture, and the mosques, with their arcaded courts, gateways, domes, and minarets, became the most characteristic edifices of Saracenic art. Wherever the Mohammedan faith prevailed, from Spain to India, beautiful examples of these buildings are found. They vary considerably in style in different countries, the Saracens generally borrowing much from the architecture of the various nations who adopted their faith. In India, the mosques have many features in common with the temples of the Jains, while in Turkey they resemble the Byzantine architecture of Constantinople. Everywhere the dome is one of the chief and most beautiful features of the mosques, which usually consist of porticoes surrounding an open square, in the centre of which is a tank or fountain for ablution. Arabesques and sentences of the Koran inscribed on th walls, which are generally whitewashed and never bear any device representing a living thing, are the only ornaments of the interior. The floor is generally covered with mats or carpets: there are no seats. In the s.e. is a kind of pulpit (Mimbar) for the Imám; and in the direction in which Mecca lies (the Kibleh), there is a niche (Mehrab) toward which the faithful are required to look when they pray. Opposite the pulpit, there is generally a platform (Dikkeh), surrounded by a parapet, with a desk bearing the Koran, from which portions are read to the congregation. The

five daily prayers (see MOHAMMEDANISM), which are generally said at home—especially by the better classes—on week-days, are said in the M. by the whole congregation on Fridays, the days of Al-Gumah, or the Assembly, the Moslem Sundays, together with some additional prayers, and at times a sermon is added to the service. It is not customary for women to visit the mosques, and if they do, they are separated from the men. The utmost solemnity and decorum are preserved during the service, though in the hours of the afternoon (when there is no worship) people are seen lounging, chatting, even engaged in their trade, in the interior of the building. On entering the M., the Moslem takes off his shoes, carries them in his left hand, sole to sole, and putting his right foot first over the threshold, he then performs the necessary ablutions, and finishes by putting his shoes and any weapons that he may have with him upon the matting before him. The congregation generally arrange themselves in rows parallel to that side of the M. in which is the niche, and facing that side. The chief officer of a M. is the Nazir or warden, under whom are two Imáms, a kind of religious official, in no way resembling a Christian clergyman, but who performs a certain number of religious rites, as long as the Nazir allows him to do so, and who, being very poorly remunerated, generally has to find some other occupation besides. There are many persons attached to a M. in a lower capacity, as Mueddins (q.v.), Bowwabs (doorkeepers), etc., all of whom are paid, not by contributions levied upon the people, but from the funds of the M. itself. The revenues of mosques are derived from lands. With many of the larger mosques, there are schools, academies (Medressehs), and hospitals connected, and public kitchens, in which food is prepared for the poor.

MOSQUITO, n. *mŏs-kē'tō* [Sp. *mosquito*—from *mosca;* L. *musca*, a fly; F. *moustique*]: a gnat-like fly. The name is very generally given to the most troublesome species of *Culex* and allied genera : see GNAT. According to Humboldt, in tropical parts of S. America the name is given to species of *Simulia*, which are active during the day, while species of *Culex*, active chiefly during the night, are called *Zancudoes;* but these latter are the mosquitoes of other countries generally. The name was probably used first in the W. Indies, where it particularly designates a species (*C. Mosquito*) very similar to the common gnat, but not quite so large, with black proboscis, and marked with silvery white on the head, thorax, and abdomen. It abounds in the warm parts of America, especially in marshy districts and in the vicinity of stagnant waters, also in forests and among thick bushes. It and similar species extend even to far northern regions, appearing during the heat of summer in prodigious swarms. Similar species are found in similar situations in almost all parts of the world, and are almost as great a pest in Lapland as within the tropics. The

bite which they inflict is painful, and their incessant sharp buzzing prevents sleep. In India and other eastern countries, beds are provided with *mosquito curtains* of gauze, which are closely drawn at night to protect the occupant, while the natives who cannot avail themselves of such protection smear their bodies with oil. In some parts of the United States these insects give annoyance for three or four months in the late summer and in autumn; and protection of windows and doors by movable wire screens, and of beds with gauze curtains, has become common. So numerous are mosquitoes in some localities in S. America, that the wretched inhabitants sleep with their bodies covered with sand three or four inches deep, the head only being left out, which they cover with a handkerchief; and travellers have been obliged to have recourse to the same expedient. Even thick clothes afford only a partial protection from mosquitoes, being readily penetrated by the proboscis. Mosquitoes are readily attracted to a lamp, and perish in its flame; but where they are numerous, a lamp only causes additional swarms to congregate, until in some cases it is extinguished by their dead bodies.

MOSQUI'TO COAST, or MOSQUI'TO TERRITORY, or MOSQUITIA, *mŏs-kē'shĭ-a*: formerly a native kingdom on the e. coast of Central America, under the protectorate of Britain; bounded n. by Honduras, w. by Nicaragua, and s. by Costa Rica; area estimated 15,000 sq. m., but, as 20,000 m. of territory are contested between it and Honduras and Nicaragua, its extent may be approximately given at 25,000 sq. m. The coast is low, with many bays and lagunes and a number of good harbors. The two principal rivers are the Rio de Segovia (which rises within 35 m. of the Pacific Ocean) and the Rio Escondido, both flowing into the Caribbean Sea. The climate is rainy, and the temperature, considering the latitude, is cool and equal, the thermometer seldom rising above 82° or falling below 71°. On the whole, this territory is one of the most healthful parts of Central America: ague is not unusually common, epidemics are rare, and white people who do not recklessly expose themselves have good health. The swampy grounds are generally covered with dense forests, in which dye-woods and timber-trees of great value abound. Rice, maize, manioc, and other tropical plants are cultivated. The country abounds in deer of various kinds, half-wild horses and oxen roam in the savannahs, which are covered with tall grass, and alligators and serpents are common. The chief exports are mahogany, cocoa, ginger, sarsaparilla, and tortoise-shell, but the whole trade is inconsiderable. The inhabitants are of various races, the greater portion aboriginal, but many are a cross between the native Indians and runaway negroes. Their chief occupations are hunting and fishing, though there is a little agriculture and cattle-breeding. Pop. not more than 10,000 to 15,000.

The M. C. was discovered 1502 by Columbus, and was claimed by Spain till about 1660, when the king, with

consent of his people, placed himself under the protection of Britain. British colonists at different times attempted to found settlements in various parts of the country, but from various causes were soon compelled to withdraw. Of late years they have had more success. The foothold which Britain thus obtained in Central America was viewed with disapproval by the United States. In 1850, July, the United States and Great Britain bound themselves by the Clayton-Bulwer treaty 'not to occupy, fortify, colonize, or exercise dominion over the M. C., or any part of Central America;' and 1859, Nov., Britain ceded the protectorate of M. C., with the Bay Islands, to Honduras, causing much discontent among the natives of the coast, and a complete rebellion of the islanders. However, by a subsequent treaty, 1860, Jan. 26, the whole territory was finally transferred to Nicaragua (q.v.).

MOSS, n. *mŏs* [F. *mousse;* It. *musco;* L. *muscus;* Dut. *mos*, mold: Ger. *moos*, moss: Icel. *mosi*, a swampy or mossy place]: a family of plants with simple branching stems and numerous narrow leaves, found growing on rocks, trees, among grass, etc.; the ord. *Musci* or *Bryăcĕæ* (see MOSSES); a word popularly applied to many low-tufted plants; a bog; a morass: V. to cover with moss. MOSS'ING, imp. MOSSED, pp. *mŏst:* ADJ. overgrown with moss. MOSSY, a. *mŏs'ĭ*, overgrown with or abounding in moss. MOSSINESS, n. *mŏs'ĭ-nĕs*, the state of being overgrown with moss. MOSS-AGATE, a variety of agate which, on being cut and polished, exhibits numerous minute tree-like branchings of various shades, like the filaments of moss (see MOCHA-STONE). MOSS-BERRY, cranberry, which see; the *Oxycoc'cus palus'tris*, ord. *Vaccinĭăcĕæ.* MOSS-CAPPED, MOSS-CLAD, or MOSS-GROWN, covered with moss. MOSS-LAND, land abounding in peat-moss. MOSS-ROSE, a beautiful variety of the rose, having a moss-like growth on the envelope of the flower; a garden variety of *Rosa centĭfŏlĭă*, ord. *Rosăcĕæ.* MOSS-TROOPERS, a name given to the mounted robbers or banditti, in the 17th c., who, to the number of several thousand, infested the border moor-lands or mosses between England and Scotland before the union of the two crowns.

MOSS'-BUNKER, or BONY-FISH: see MENHADEN.

MOS'SES (*Musci*): order of acotyledonous plants, consisting of mere cellular tissue without vessels, and distinguished from *Hepaticæ* (q.v.), the order with which they are most nearly allied, by having always a leafy stem, and an operculated capsule or urn (*sporangium* or *theca*), which opens at the top and is filled with spores arranged around a central column (*columella*). The capsule is covered by a hood (*calyptra*); and when it is ripe, and has thrown off the calyptra and operculum, exhibits around its mouth a single or double row of rigid processes, few or numerous, but always either four or a multiple of four, collectively called the *peristome.* These reproductive organs are viewed by many botanists as

female flowers or *pistillidia*; while reproductive organs of another kind, sometimes found on the same plant, but more generally on distinct plants, are regarded as male flowers or *antheridia*. These are minute cylindrical sacs, occurring in the axils of the leaves, or collected into a head inclosed by variously modified leaves at the summit of the stem, and finally bursting and discharging a great number of spherical or oval vesicles, through the transparent walls of which, when moistened with water, filaments (*spermatozoïds*) coiled up within them may be seen wheeling rapidly round and round. As the sacs merely discharge these vesicles and perish, it is supposed

Moss.
(From *Stark's Mosses.*)

1, perfect plant: *a*, branches clothed with leaves; *b*, seta, or footstalk; *c*, capsule; *d*, operculum, or lid. 2, branch producing stellate heads, having masses of 'male' flowers, and filaments in centre. 3, spore of moss, germinating. 4, spore of moss in a more advanced state.

that the spermatozoïds contained in them may effect the fertilization of the spore-producing capsules; but this lacks confirmation, and their particular office as reproductive organs is not yet ascertained.—None of the M. are large plants; many are very small. Many have elongated stems, often branching; others have the stem scarcely developed, so that they seem to consist of a mere tuft of leaves. They are generally social in their manner of growth. They are among the first plants which begin to clothe the surface of rocks, sands, trunks of trees, etc., adapting inorganic matter for the support of higher kinds of vegetation. They love moisture, and are generally more abundant in cold and temperate than in hot climates.

They struggle for existence on the utmost limits of vegetation in the polar regions and on mountain-tops. They dry up and appear as dead in a very dry state of the atmosphere, but revive when moisture returns. Some of them grow in bogs, which they gradually fill up and consolidate. They are of great use in protecting the roots of many plants from cold and from drought, and afford harbor to multitudes of insects. Some supply food for cattle, particularly for the reindeer, when nothing better is to be obtained, and a wretched kind of bread is even made by some of the dwellers in the Arctic regions, of species of *Sphagnum*. Some are astringent and diuretic, but their medicinal virtues are unimportant. Among the uses to which they are applied by man are the packing of things liable to be broken, the littering of cattle, the covering of garden plants in winter, and the stuffing of the open space in roofs, to moderate the heat of attic rooms in summer and their cold in winter. The abundance of M. in meadows and pastures is disagreeable to farmers. The best remedies are proper drainage, the application of lime, and the liberal use of other manures, by which the soil may be enriched, so that better plants may grow with sufficient luxuriance, upon which the M. are choked and disappear.

Several thousand species of M. are known. Many of the M. are very beautiful, and their capsules and other organs are interesting objects of study, even with an ordinary magnifying-glass.

MOSSLEY, *mŏs'lĭ:* town, Lancashire, Eng. It is near the Tame river, about 10 m. e.n.e. of Manchester, on the Huddersfield canal and the London and Northwestern railway. It is largely engaged in cotton manufacturing, has a mechanics' institute, and is the seat of an annual fair. On an eminence near is a high circular stone tower, the spire of which was rebuilt 1758. In 1864 the town came under the provisions of the Local Government Act. Pop. (1871) 10,578; (1881) 13,372.

MOST, a. *mōst* [AS. *mæst;* Scot. *maist;* Goth. *maists;* Dut. *meest;* Icel. *mestr*, most (see MORE)]: superl. degree of *much;* consisting of the greatest number or quantity: N. the greatest number, part, or quantity; the utmost value or extent—when apparently used as a noun, the noun is really understood. MOST, ad., or MOST'LY, ad. *-lĭ*, in the greatest or highest degree; for the greatest part. AT MOST, or AT THE MOST, within the furthest limits; the utmost extent. TO MAKE THE MOST OF, to derive the greatest benefit or advantage from.

MOSTAR, *mŏs-târ':* town of European Turkey, cap. of Herzegovina (q.v.), on the Narenta, 45 m. s.w. of Bosna-Seraï. It is surrounded by embattled walls, contains ten mosques, a Greek church, and a famous Roman bridge of one arch, 95 ft. in span. Silk, grapes, and wine are produced, and knife-blades and weapons are manufactured. M. has considerable trade. Pop. 18,000.

MOSTICK, n. *mŏs'tĭk* [contr. from Ger. *malerstock*] : the stick or staff on which a painter rests his hand when printing; also written *mahl-stick* and *maul-stick*: see the former.

MOSUL, *mō'sŭl* or *mô'sŭl:* town of Asiatic Turkey, province of Al-Jezireh (ancient Mesopotamia), on the right bank of the Tigris, opposite the ruins of ancient Nineveh (q.v.), 180 m. up the river from Bagdad. It is surrounded by walls, and is more flourishing than most Turkish towns, on account of its caravan-trade with Diarbekir, Bagdad, and Aleppo, though its prosperity is nothing to what it formerly was. During the middle ages it supplied all Europe with its rich manufactures—*muslins*, according to Marco Polo, got their name from this town; now, on the contrary, the bazaars of M. are filled with the manufactures of the West. The principal causes of its diminished importance are the rise of Abushehr (q.v.) as an emporium of trade, and the opening of the new sea-route to India, across the Isthmus of Suez. M. is the seat of a Jacobite patriarch, and was formerly the great metropolis of all the Mesopotamian Christians (the Nestorians, the United Chaldæans, the Jacobites, etc.); but war, pestilence, famine, Mohammedan proselytism, oppression, and incessant anarchy have greatly reduced their numbers. Pop. estimated 18,000 to 40,000, of whom about a fourth are Christians; 1,500 Jews; the rest Mohammedans (Arabs, Kurds, and Turks).

MOT, n. *mō* [F. *mot*, word, expression—from It. *motto* —from mid. L. *muttum*, a word] : a saying; a motto; a call sounded on the horn in hunting, at the death of the game: see MORT 1. BON MOT, *bŏng mō* [F. good word] : a witty saying; a jest.

MOT, or MOTE, v. *mōt* [AS. *mot*, must, ought] : in *OE. primarily*, must; ought; *later OE.*, may. SO MOTE IT BE, in *OE.*, so may it be; amen.

MOTACIL'LIDÆ: see WAGTAIL.

MOTAZILITES, *mō-tăz'ĭ-līts*, or MUTAZ'ALITES, *mū-:* 'heretical' Mohammedan sect, dating a few generations after Mohammed (see MOHAMMEDAN SECTS). Their name is derived from an Arabic word, denoting 'to separate one's self,' and originally applied to any special sect or union of men; but the M. becoming the most important and dangerous in Islam, they received this denomination by way of eminence. They were called also Moattalites —i.e., those who divest God of His attributes—and Kadarija—i.e.; 'those who hold that man has a free will, and deny the strict doctrine of predestination.' The first beginnings of this sect are traced to Mabad, who, in the time of Mohammed himself, began to question predestination, by pointing out how kings carry on unjust wars, kill men, and steal their goods, and all the while pretend to be merely executing God's decrees. The real founder of the sect, as such, however, is Wasil b. Ata. He denied God's 'qualities,' such as knowledge, power, will,

life, as leading to, if not directly implying, polytheism. As to predestination itself, this he allowed to exist only with regard to the outward good or evil that befalls man, such as illness or recovery, death or life; but man's actions he held to be entirely in his own hands. God, he said, had given commandments to mankind, and it was not to be supposed that He had, at the same time, preordained that some should disobey these commandments, and that, further, they should be punished for it. Man alone is the agent in his good or evil actions, in his belief or unbelief, obedience or disobedience, and he is rewarded according to his deeds. These doctrines were further developed by his disciple, Abu-l-Hudail, who did not deny so absolutely God's 'qualities,' but modified their meaning in the manner of the Greek philosophers—viz., that every quality was also God's essence. The attributes are thus not without, but within, Him, and so far from being a multiplicity, they merely designate the various ways of the manifestations of the Godhead. God's will he declared to be a peculiar kind of knowledge, through which God did what He foresaw to be salutary in the end. Man's freedom of action is possible only in this world. In the next, all will be according to necessary laws immutably preordained. The righteous will enjoy everlasting bliss; and for the wicked, everlasting punishment will be decreed. Another doctrine of his system was the assumption that, before the Koran had been revealed, man had already come to the conclusion of right and wrong. By his inner intellect, he held, everybody must and does know—even without the aid of the divinely given commandments—whether the thing he is doing be right or wrong, just or unjust, true or false. He is further supposed to have held that, unless a man be killed by violent means, his life would neither be prolonged nor shortened by 'supernatural' agencies. His belief in the traditions was not absolute. There was no special security, he said, in a long, unbroken chain of witnesses, considering that one fallible man among them could corrupt the whole truth.

Many were the branches of these M. There were, apart from the disciples of Abu-l-Hudail, above mentioned, the Jobbaians, who adopted Abu Ali Al-Wahhab's (Al-Jobbâi's) opinion, to the effect that the knowledge ascribed to God was not an 'attribute;' nor was his knowing 'necessary;' nor did sin prove anything as to the belief or unbelief of him who committed it, who would in either case be subjected to eternal punishment if he died in it, etc.—Besides these, there were the disciples of Abu Hashem—the Hashemites, who held that an infidel was not the creation of God, who could not produce evil.—Another branch of the M. were the disciples of Ahmed Ibn Hayet, who held that Christ was the eternal Word *incarnate*, and assumed a real body; that there were two gods, or creators, one eternal, viz., the Most High God, and the other not eternal, viz., Christ—not unlike the Socinian and Arian theories on

the nature of Christ; that there is a successive transmigration of the soul from one body into another, and that the last body will enjoy the reward or suffer the punishments due to each soul; and that God will be seen at the resurrection with the eyes of understanding, not of the body.

Four more divisions of this sect are mentioned—viz., the Jâhedhians, whose master's notion about the Koran was, that it was 'a body that might grow into a man, and sometimes into a beast, or to have, as others put it, two faces—one human, the other that of an animal, according to the different interpretations.' He further taught them that the damned would become fire, and thus be attracted by hell; also, that the mere belief in God and the Prophet constituted a 'faithful.'—Of rather different tendencies was Al-Mozdar, the founder of the branch of the Mozdarians. He not only held the Koran to be uncreated and eternal, but, so far from denying God the power of doing evil, he declared it to be possible for God to be a liar and unjust.—Another branch was formed by the Pasharians, who, while they carried man's free agency rather to excess, yet held that God might doom even an infant to eternal punishment—all the while granting that He would be unjust in so doing.—Another branch of these Motazilite sectarians were the Thamamians, who held, after their master, Thamâma, that sinners would undergo eternal damnation and punishment; that free actions have no producing author; and that, at the resurrection, all infidels, atheists, Jews, Christians, Magians, and other infidels and heretics should be returned to dust. The vast scientific development, however, which the doctrines of the M. begot, and which resulted in the encyclopedic labors called 'The Treatises of the Sincere Brethren and True Friends,' was not without importance: see SINCERE BRETHREN.—See Weil, *Geschichte der Khalifen;* Sale's *Koran;* Steiner, *Mutaziliten;* Dieterici, *Transactions of the German Oriental Society*, etc.

MOTE, n. *mōt* [AS. *mot*, an atom: comp. Dut. *mot*. dust, sweepings: Sp. *mota*, a small particle]: a small particle, as of dust; anything proverbially small.

MOTE, n. *mōt*, or GEMOTE, n. *gĕ-mōt'* [AS.: Icel. *mót*, a meeting: Gael. *mod*, a court of justice]: in *AS. times*, a meeting, as in the *Witenagemot*, the assembly of wisemen. WARD-MOTE, in the *city of London*, the court or public meeting of the inhabitants of one of the wards into which the city is divided. FOLK-MOTE: see under FOLK.

MOTETT, or *motet*, n. *mō-tĕt'* [F. *motet*, a verse of a song, a short lay—from It. *mottetto*, a motet—from *motto*, a word, device]: name applied to two different forms of musical composition—1. A sacred cantata, consisting of several unconnected movements, as a solo, trio, chorus, fugue, etc.; 2. A choral composition, generally sacred, beginning with an instruction in the form of a song, perhaps with figurative accompaniment; after which follow several fugue subjects, with their expositions, the whole ending either with the exposition of the last subject, a repetition of the introduction, or a special final subject. A M. differs in this respect from a double or triple fugue, that the subjects never appear simultaneously, but are introduced one after the other. In one form of the M., the successive phrases of an entire chorale are treated as so many fugal subjects.

MOTH, n. *mŏth* [Dut. *mot*, dust, a moth: Norw. *mott*; Icel. *motti*, a mite, a moth: Goth. *matha*, a worm: OHG. *mado*, a maggot: Ger. *motte*, a moth]: a winged insect of several species, somewhat like and akin to the butterfly, generally seen in the twilight; a worm, the grub of a moth, that breeds in and consumes cloths, etc., laid up from the air; *figuratively*, that which gradually and silently consumes or eats away anything. MOTHY, a. *mŏth'i*, full of moths. MOTH-EATEN, a. *mŏth-ēt'n*, full of holes by moths.

MOTH: popular name of all the insects in the section *Nocturna* of order *Lepidoptera* (q.v.). They formed the genus *Phalæna* of Linnæus, but are now distributed into many genera and families, the species being extremely numerous. Among them are the very largest *Lepidoptera*, also the smallest. They are distinguished from Hawk-moths, and from most of the butterflies, by their bristle-shaped antennæ, tapering from base to apex. The antennæ are frequently feathered or pectinated, especially in the males. The proboscis is generally similar to that of butterflies; but there are some groups of moths in which it is merely rudimentary, and these are supposed to take no food after they pass from the larva state. The thorax is generally shorter and more robust than in butterflies; the tibiæ of the legs often bear a kind of spur; the wings are held either in a horizontal or in an inclined position when at rest; or, in many of the smaller moths, are wrapped round the body. The two wings of the same side are generally hooked together in repose by means of bristles on the margin. The females of a few species are wingless.—Moths are generally nocturnal, though there are a few exceptions. They often exhibit great richness and beauty of colors, though in brightness of color not generally equal to butterflies. Their food is similar to that of butterflies.—They lay great numbers of eggs, which exhibit varieties of form and color as great as those of the insects themselves. Their caterpillars are more widely various in form and characters than those of butterflies; differing from each other in the number of their legs, and in horns, protuberances, caudal

appendages, hairy covering, etc. Some are social both in the larva and chrysalis state; forming, on their enter-

Lackey Moth:
A, the belt of eggs; B, the caterpillar; C, the pupa in its cocoon; D, the moth.

ing the latter state, very curious nests. The chrysalis of a moth is never angular nor furnished with protuberances, and is generally enveloped in a silken cocoon, close and compact; though some moth chrysalids are found in a mere space filled with threads which cross each other in various directions. Silk-worm (q.v.) moths are among the insects most useful to man; but moths in general are regarded as injurious, the larvæ of many feeding on leaves of various kinds, and often destroying valuable crops; and the larvæ of some small species being very destructive to clothes, books, etc. The largest and most splendid moths inhabit tropical countries. For some of the most interesting and important kinds of moth, see the separate titles: see also BUTTERFLY. Notwithstanding a popular dislike of moths, observation of their habits and of the richness of the color of many of them, is a favorite pursuit of naturalists.

MOTHER, n. *mŭth'ėr* [Skr. *mâta, matri;* Gr. *mētēr;* L. *mater;* Gael. *mathair;* Russ. *mater;* Icel. *modir*, a mother]: a woman who has borne offspring; a female parent; that which has produced anything; that which is oldest and chief; a familiar term of address to an elderly woman; the dregs from certain liquids, as vinegar; in *OE.*, hysterical passion: ADJ. native; natural; received from parents or ancestors: V. to adopt, as a son or daughter; to ascribe to. MOTH'ERING, imp. MOTH'ERED, pp. *-ėrd.* MOTH'ERLY, a. *-lĭ*, pertaining to a mother; becoming a mother; affectionate; tender: AD. in the manner of a mother. MOTH'ERLINESS, n. *-nĕs*, the quality of being a mother, or acting as a mother. MOTH'ERLESS, a. *-lĕs*, having lost a mother. MOTH'ERHOOD, n. *-hûd*, state of being a mother. MOTH'ERY, a. *-ėr-ĭ*, containing thick,

slimy matter, as a liquid. MOTHER CHURCH, the oldest church in a large parish which has been subdivided into smaller ones; one's own church; the church that is deemed original or most ancient. MOTHER COUNTRY, the country from which a new country has chiefly been colonized. MOTHER TONGUE, one's native language. MOTHER WATER or LIQUOR or LYE, the liquid remaining after crystals have been obtained from it (see LYE: also Note, below). MOTHER WIT, native wit; shrewd common-sense. MOTHER-IN-LAW, the mother of one's husband or wife. MOTHER-OF-COAL, the name given by the miners to the fine silky-fibrous laminæ of carbon or mineral charcoal, which occur embedded in the seams of ordinary coal. *Note.*—MOTHER, as applied to the dregs of vinegar, oil, wine, etc. [Ger. *mutter;* Bohem. *mutka,* mother, or dregs of vinegar], is the same word, and 'the expression appears to be taken from the process of distillation or of salt-making, where the *mother* waters are the original source from which the spirits or the salts are produced. The *turbid residue* is the *mother,* after parting with the child, to which the process of manufacture has given birth. So in wine-making the crushed grapes are the wine in the *mother's* womb; after separation, the husks and stones are regarded as the *mother* from which the pure wine has been produced, the sediment subsequently formed from the wine being still regarded as part of the parent substance'—see Wedgewood.

MOTHER CAREY'S CHICKEN: name familiarly given by sailors to the Stormy (or Storm) Petrel and other small oceanic species of Petrel (q.v.).—The name MOTHER

Mother Carey's Chicken, or Storm Petrel (*Procellaria pelagica*).

CAREY'S GOOSE is, in like manner, given to the Great Black Petrel or Gigantic Fulmar (*Procellaria gigantea*) of the Pacific Ocean; a bird about three ft. in entire length, with very long wings, and blackish-gray plumage, a ravenous feeder on dead whales and all other animal garbage, and which also preys upon other sea-birds.

MOTHER OF PEARL: shells of the large bivalve mollusk *Meleagrina margaritifera*, which also produces the precious pearls: see PEARL. The term M. of P. is applicable to all pearly shells; also to the hard internal nacreous layer, of iridescent lustre. The shells above named are collected in vast numbers in the tropical seas, chiefly on the coasts of Ceylon, Manilla, Cuba, Panama, and the South Sea Islands. Those from Panama are small and thick, and are known in commerce as 'bullock' shells; those from Manilla are finest in quality, often as much as 12 inches in diameter, round, and flat. There are two varieties—the white or silver-lipped, and the black-lipped. The trade in these shells is enormous: the imports into Britain alone amount to 3,000 tons per annum, value nearly £100,000. Although large quantities of these shells are consumed in inlaying fancy wood-work, papier mâché, and in making knife-handles and other small ornamental objects, by far the greater portion is required or making buttons.

MOTHERWELL, *mŭth'ĕr-wĕl:* town of Scotland, in Lanarkshire, 11 m. from Glasgow. Its progress, which of late years has been rapid, is due chiefly to the coal mines in its neighborhood. Pop. (1861) 2,925; (1871) 6,943; (1881) 12,904.

MOTHERWELL, WILLIAM: Scottish poet and antiquary: 1797, Oct. 13—1835, Nov. 1; b. Glasgow. He was educated chiefly at the grammar-school of Paisley, where, in his 15th year, he entered the office of the sheriff-clerk. At the age of 21, he was appointed sheriff-clerk depute of the county of Renfrew. In the following year he published his first work, *Harp of Renfrewshire*, containing biographical notices of the poets of that district, from the 16th to the 19th c. This work was but the prelude to one of far greater importance—*Minstrelsy, Ancient and Modern* (Glasgow 1827). In 1828, he commenced the *Paisley Magazine*, in which some of his finest original pieces first saw the light, and in the same year accepted the editorship of the *Paisley Advertiser*, a Conservative journal. In 1830 he became editor of the *Glasgow Courier*. He died in Glasgow—his early death being hastened probably by the fatigue and annoyance of political journalism. M. in his best moods (but *only* then) shows a rich, beautiful, and strong imagination, great warmth and tenderness of feeling, and a thorough knowledge of the language of a poet. His *Jeanie Morison* is unsurpassed for the mingled pathos and picturesque beauty of its reminiscences of boyish love; *The Sword-Chant of Thorstein Raudi* is perhaps the most heroic rune in the English tongue; and the little piece beginning, 'My heid is like to rend, Willie,' has often been read with tears. An enlarged ed. of his poetical remains, with a memoir, was published, London 1849.

MOTH'ERWORT (*Leonurus Cardiaca*): plant of nat. order *Labiatæ*, found about hedges and in waste places in Europe, and now abundantly naturalized in parts of

N. America. It is perennial, has a branched stem about

Motherwort (*Leonurus Cardiaca*).

three ft. high, stalked leaves, the lower ones 3-lobed, and crowded whorls of reddish-white flowers. The calyx has five pungent spreading teeth. The upper lip of the corolla is shaggy on the upper side, the lower lip trifid. The anthers are sprinkled with shining dots. The plant was formerly in much use as a domestic pectoral medicine, but is now little employed. It has a strong, but not agreeable odor.—Other species of the same genus are found in Europe and n. Asia.

MOTIFIC, a. *mō-tĭf'ĭk* [L. *motus*, moved; *fīō*, I am made]: producing motion.

MOTILITY, n. *mō-tĭl'ĭ-tĭ* [F. *motilité*, facility of moving —from L. *motus*, moved]: capability of moving; the faculty of moving.

MOTION, n. *mō'shŭn* [F. *motion*—from L. *motiōnem*, a moving—from *movĕō*, I move: It. *mozione*]: change of place or of local position; the passing of a body from one place to another, as opposed to *rest* (see MOTION, LAWS OF); animal life and action (see MOTION, ANIMAL); manner of moving the body; change of posture; impulse communicated; tendency of the mind; internal action, as of the bowels; a proposal made at a meeting or an assembly; in a *locomotive engine*, the cross-head, cross-head guides, and the blocks, taken as a whole, are called 'the motion'; in *OE.*, a puppet; a puppet-show, usually illustrative of scriptural subjects, popular in England in the 15th c. and later: V. to make a significant movement with the hands, as to motion to a chair; in *OE.*, to advise; to make proposal. MO'TIONING, imp. MOTIONED, pp. *mō'shŭnd*. MO'TIONLESS, a. *-lĕs*, being at rest.

MO'TION, in Plants: see IRRITABILITY: SPORE.

MO'TION, ANIMAL, or strictly ANIMAL LOCOMOTION: that function in the exercise of which an animal is able to transport itself from place to place. It is possessed exclusively by animals, there being nothing strictly analogous to it in the vegetable kingdom. The organs employed in locomotion are of two kinds, the *passive* and the *active;* the former including all those textures which form the skeleton, and by which its segments are united, as fibrous and areolar tissue, synovial membrane, cartilage, fibro-cartilage, and bone; while the latter includes the muscles, with the nerves, which convey to them the mandates of the will.

Before noticing the different modes of progression of men and animals, it is proper to consider *standing*—one of the natural attitudes of an animal. This attitude depends on the form and functions of the limbs. Most of the terrestrial mammals and the reptiles (except the serpents), both of which use four feet in walking, have the backbone (the vertebral column) nearly horizontal (being only slightly concave downward), and resting, at the same time, both on the fore and on the hind legs. Birds, whose anterior extremities are intended for flight, stand upon the posterior limbs only, though in their case, too, the backbone is generally nearly horizontal when the animal is at rest. Man alone stands erect with his head supported on the summit of the nearly vertical vertebral column. Some other animals (monkeys, hares, kangaroos, etc.) can rise more or less erect, but in their case the attitude is obviously not the natural or an easy one. In standing, it is requisite that the limbs should be so arranged that the centre of gravity may fall within the space included by the feet. If the centre of gravity does not fall within this space, the animal cannot stand, but must fall to that side to which the centre of gravity inclines. On this account certain aquatic birds (e.g., the albatross), which have their feet placed very far back, cannot use them for walking. If an animal has four legs, it is not necessary that they should have the broad

base which is requisite in bipeds. Most quadrupeds have comparatively small feet, while birds are furnished with long toes, which, when spread out, form large bases of support. Moreover, the flexor muscles of the toes are so arranged that the weight of the body causes them to contract firmly; hence birds are enabled to sleep standing without any effort.

Walking is one of the common forms of progression. When it is accomplished by two legs only, as in man, the body is inclined forward, carrying the centre of gravity in that direction; and while one leg supports the body, the other is thrown forward to prevent it from falling, and to sustain it in turn. Hence, walking has been defined to be a continual falling forward, interrupted by the projection of the leg. Those writers who have especially studied the theory of walking (Borelli, the brothers Weber, and Bishop) have divided the time of a step into two portions—i.e., that in which only one leg rests on the ground, and that in which both legs rest on the ground. The period in which both feet are on the ground is shorter than that in which the body is supported by one leg only. During the time the body is supported by one leg, the other leg swings from behind forward, without the active intervention of its muscles, but by the mere force of gravity—in short, like the pendulum of a clock. When this leg is again placed on the ground, the first interval ends, and the other—i.e., that in which the body is supported by both legs—begins, and of course terminates with the raising of the other leg. The time that the body is supported by both legs diminishes as the velocity increases, and vanishes as the walk merges into a run; while, on the other hand, it attains its maximum in extremely slow walking, when it is found by experiment to amount to half the time in which only one leg supports the body. The greatest velocity of walking is attained when the time of a step is equal to half the duration of the motion of the swinging leg, and the velocity in walking of any given person depends on the time taken in making each step, and on the length of the steps; and both of these are dependent on the height at which the centre of gravity of the body or the heads of the thigh-bones are carried above the ground; for as the height of the latter diminishes, the length of the step is increased, while its time is diminished, and *vice versâ*. The most rapid walkers are incapable of acquiring a speed of more than seven miles an hour; and even this speed can be kept only a short time. The walking of quadrupeds is a similar process to that of bipeds, except that the body always rests on at least two legs. The limbs are raised in a determinate order, and usually in such a manner that the hind-leg of one side succeeds the fore-leg of the opposite side.

Running consists of the same succession of motions as walking; but these motions are so accelerated, that there is a period between two steps when the body is not supported on either leg; and this constitutes the essential

difference between the two paces. It requires a far greater expenditure of muscular force than walking, and cannot be long maintained without considerable exhaustion. First-rate runners can accomplish a mile in a few seconds less than four minutes and a half, and ten miles in an hour. (Levett in a match with Frost, 1852, March 22, at Copenhagen Fields, ran 10 m. 250 yards, in 52′ 53″, and Deerfoot ran 11 m. 740 yards, at Brompton, in an hour). In quadrupeds there are various paces besides walking, which are known as trotting, cantering, and galloping; and as the ordinary paces of the horse are familiar, that animal is taken for illustration. In *trotting*, the horse moves its legs in pairs diagonally. Thus, if the left fore and right hind leg be raised, and advanced first, the right fore and left hind leg will be raised the instant the others reach the ground. In fact, in trotting, the first pair are actually raised before the other legs reach the ground, so that there is a minute interval when all four feet are raised above the ground at the same time. The velocity acquired by moving the legs in pairs (as in running), instead of consecutively (as in walking), depends on the fact, that in trotting each leg rests on the ground during a short time and swings during a long time, while in walking the swing occupies a short period, and the rest a comparatively long one. In *cantering*, the animal, after advancing the two fore-legs one after the other, brings forward the two hind-legs simultaneously; and when this movement is greatly urged, the fore-legs are raised together, as well as the hind-legs, and the pace then becomes the *gallop*.

In *leaping*, the horse raises the fore-legs from the ground, and propels the body upward and forward by the hind-legs alone. This act in the horse is mainly the result of education, and those animals that leap or spring upon their prey (as the members of the cat tribe) crouch before leaping, in order to throw the body forward with the greatest possible force, by first bending all the limbs, and then suddenly extending them. As the hind-legs are, however, the essential agents in leaping, we observe that in those animals whose natural mode of progression is leaping—as frogs, hares, kangaroos, etc.—the hind-legs are much longer, and more muscular than the fore-legs. Leaping is a common mode of progression in many short-legged birds (blackbirds, thrushes, finches, sparrows, etc.,) in which the step would be extremely short if performed by moving the legs alternately. There is also a large number of insects, e.g., grasshoppers, fleas, etc., whose ordinary mode of progression is by leaps; and it is in this class of animals that the leaping power is developed to its greatest extent. The common flea, e.g., can leap 200 times its own length. While fleas, locusts, and grasshoppers leap by means of their long and strong hind-legs; other insects, as the *Poduridæ*, or spring-tails, possess a forked tail, which they bend beneath the body, and which, when suddenly extended, propels them to a considerable distance.

Climbing, is merely walking on an inclined or vertical surface. It is usually accomplished by means of sharp nails or claws, as in the cat-tribe, the lizards, etc. In many birds, as the woodpeckers, parrots, etc., the toes are arranged in two divisions, so as to grasp branches in the manner of a hand. Bears and sloths use their arms for climbing, while monkeys use their hands, and in some cases their tails. It is only in a very few cases, as in the sloth, that this is the ordinary method of progression.

The act of *flying* in the bird is accomplished by the simultaneous action of the two anterior limbs, the wings, much as leaping is by that of the two posterior limbs: see FLYING BIRDS. Many attempts have been made to estimate the velocity at which different birds can fly. Whether, as has been stated, the eider-duck can fly 90, and the hawk 150 m. in an hour, is questionable ; but it has been ascertained that carrier-pigeons can accomplish from 38 to 42 m. in that time. The bats are the only mammals which possess a true power of flight. For a description of their organs and mode of flight, see BAT, where will be found also a notice of the false claims made for some other mammals, e.g., the flying-squirrel, to the possession of true flight. Similarly, the actions of the flying lizard and of the flying-fish are not true flight. In no class of animals is the mechanism of flight so perfect as in insects. The dragon-fly, e.g., can outstrip the swallow; and can do more in the air than any bird, as it can fly backward and sidelong, to right or left, as well as forward without turning. The wings of insects, of which there may be either one or two pair, are analogous (as instruments of motion) to the feathered wings of birds, but are regarded as homologous to (or in their essential nature) branchiæ or respiratory organs. For details regarding the mechanism employed in aërial progression by insects, see INSECTS.

Swimming is the mode of progression employed by most aquatic animals. It differs from flying mainly in this respect, that water being much more dense than air, and the body of the animal being nearly of the same weight as the water that it displaces, very little effort is required to keep the animal from sinking; hence almost the whole of the muscular force can be employed in progression. In fishes, the locomotive organs consist of the fins and tail, the latter being the great propelling organ. The swimming of a fish has been correctly compared to the motion of a boat propelled by a single oar or scull at the stern. In the same manner as a succession of strokes alternately right and left propels the boat straight forward, so the fish advances by striking alternately right and left with its tail. The caudal fin, in which the tail ends, is vertical in fishes, and is usually considerably forked, when there is great speed. The ventral fins are for the purpose of keeping the fish in its proper position, with the back upward, as is shown by a well-known experiment of Borelli, who, after cutting off

these fins, restored the living fish to the water, when it rolled from side to side like a drunken man. The air-bladder with which many fishes are provided, and which they can distend and contract at pleasure, facilitates their swimming by enabling them to modify their specific gravity. Most terrestrial mammals, excepting man, swim at once the first time they find themselves in deep water. The reason of this is, that their limbs move in water precisely as they do on land, and no new action either as regards direction or order is required, as is the case with man, to enable them to swim. Those which frequent the water, as seals, otters, and beavers, have webbed feet like ducks and other palmiped birds, the toes being united by membranes, which, when expanded, act as paddles. A large number of invertebrate animals move chiefly by swimming. Thus lobsters move by means of a vertical motion of the tail, and many of the crabs by means of their posterior legs, which are fashioned like oars. Many insects swim with their legs, which are fringed with hairs to give additional surface. The cuttle-fish uses its long arms as oars, and darts through the water with extreme rapidity; while other mollusks erect sail-like organs, by which they are propelled along the surface of the water.

For notices of the more special modes of progression, see a variety of specific titles.—See CRUSTACEA: SERPENTS: WORMS.

MO'TION, LAWS OF: fundamental principles connecting force and motion in the physical universe. They are obviously to be derived from *experiment* alone, since intuitive reasoning cannot possibly give information as to what may or may not be a law of nature. Though these laws are derived from experiment, it cannot be said that we have any very *direct* experimental proofs of their truth—our most satisfactory verifications of them are derived from the exact accordance of the results of calculation with those of observation in the case of such gigantic combinations of mutually influencing bodies as that of the solar system; and it is by such proofs that they must be considered to have been finally established. They seem to have been given systematically and completely first by Newton, at the opening of the *Principia;* but the first two laws were known to Galileo, and some of the many forms of a *part* of the third were known to Hooke, Huyghens, Wren, and others. They are here given in order, with brief comments, showing their *necessity* and *use.*

First, then, we naturally inquire, what matter would do if left to itself; and, by considering cases in which less and less external force is applied to a body, we are led to the statement called the *first law of motion:* 1. *Every body continues in its state of rest or of uniform motion in a straight line, except as it may be compelled by impressed forces to change that state.* This expresses simply the *inertia* of matter—i.e., a body cannot alter its state of rest or motion; for any such alteration external force is

required. Hence the definition of Force (q.v.), as that which changes or tends to change a body's state of rest or motion.

Now, how does the change of state depend on the force which produces it? This is obviously a new question, to be resolved by experiment; and the answer is the *second law of motion:* 2. *Change of motion is proportional to the impressed force, and takes place in the direction of the straight line in which the force acts.* Newton's silence is as expressive as his speech. Nothing is here said about the previous motion of the body, or about the number of forces which may be at work simultaneously. Hence, a force produces its full effect in the form of change of motion, whether it act singly, or be associated with others; and whatever, moreover, be the original motion of the body to which it is applied. Hence, there is no such thing as equilibrium of *forces;* every force produces motion—and what we call equilibrium is the balancing not of forces, but of their effects. Hence, the absurdity of attempting to found the science of Statics on any other basis than is to be derived from the second law of motion; which, in fact, leads us at once (by the *Parallelogram of Velocities*, a purely geometrical conception) to the *Parallelogram of Forces*, and thence, with the help of the third law, to the whole subject of Statics. The second law also supplies the means of measuring *force* and *mass;* and of solving any problem whatever concerning the motion of *one* particle.

But more is required before we can study the motion of a system of particles—as a rigid body, or a liquid, for instance; or a system of connected bodies. Here there are mutual actions and reactions of the nature of pressure or of transference of energy (see FORCE) between the parts—and these are regulated by the *third law of motion:* 3. *To every action there is always an equal and contrary reaction: or, the mutual actions of any two bodies are always equal and oppositely directed in the same straight line.* Thus, the mutual pressure between two bodies has equal, but *opposite*, values for the two. The tension of a rope is the same throughout, and tends as much to pull *back* the horse at one end as to pull *forward* the canal-boat at the other. The earth exerts as much attractive force on the sun as the sun exerts on the earth —and the same law applies to the other attractive and repulsive forces, as those of electricity and magnetism.

But Newton goes much further thun this; he shows, in fact, that action and reaction (subject to the third law) may consist in *work done by a force*, instead of the mere force or pressure itself. From this form of the third law is derived at once the principle of Virtual Velocities (q.v.), which in its application to machines is familiar as '*What is gained in power is lost in speed.*' We derive also the grand principle of the indestructibility of work or energy: at all events in the case of the ordinary mechanical forces—and this must be regarded as one of the grandest discoveries which science owes to

Newton. It is true that he merely *mentions* it, and then abruptly passes to another subject; yet we can hardly exaggerate the value of this single remark. Experimenters, mainly Davy and Joule, have since shown that all the physical energies, as heat, light, electricity, etc., are subject in their transformations to the third law of motion, and thus the system constructed by Newton for ordinary dynamical purposes, is now found to rule the most mysterious affections of matter. For a development of this, see FORCE: also DYNAMICS: WORK: MECHANICAL POWERS: ETC.

MOTIVE, a. *mō'tĭv* [F. *motif*—from mid. L. *motīvus*, that moves, animating—from *movĕō*, I move]: causing motion; able or tending to move: N. that which actuates or influences; that which determines the choice; inducement; cause; reason; in *art*, that which produces conception, invention, or creation in the mind of the artist, when undertaking a subject. MOTIVE, or MOTIVO, in a musical composition, the principal subject on which the movement is constructed, and which, during the movement, is constantly re-appearing in one or other of the parts, either complete or modified. In elaborate and long compositions there are also secondary motives. MOTIVITY, n. *mō-tĭv'i-tĭ*, the power of producing motion. —SYN. of 'motive, n.': purpose; object; incentive; incitement; stimulus.

MOTLEY, a. *mŏt'lĭ* [OF. *mattelé*, clotted, curdled—from *mattes*, curds: Bohem. *matlati*, to smear, to daub]: speckled; covered with spots of different colors; composed of various parts or characters: see MOTTLE.

MOTLEY, *mŏt'lĭ*, JOHN LOTHROP, LL.D., D.C.L., etc.: 1814, Apr. 15—1877, May 29; b. Dorchester (now part of Boston), Mass.: historian. After graduating at Harvard Univ., he spent a year at Göttingen, another at Berlin, and travelled in Italy and other parts of s. Europe. Returning to America 1834, he studied law, and was admitted to the bar 1837; but, preferring literature, he wrote a historical romance, *Morton's Hope* (1839), which had little success. In 1840 he received the appointment of sec. of legation to the American embassy to Russia, but soon resigned, and, 1849, published another unsuccessful novel, *Merry Mount, a Romance of the Massachusetts Colony.* He attracted attention, however, by some valuable historical essays for American reviews, in particular one on De Tocqueville's *Democracy in America*, and another on 'Peter the Great.' Having planned a history of Holland, and finding a lack of adequate materials in the United States, he removed with his family to Europe 1851, and prosecuted his investigations in Berlin, Dresden, Brussels, and the Hague. After five years' labor, he published 1856 *The Rise of the Dutch Republic.* In 1860 appeared a continuation: *The History of the United Netherlands from the Death of William the Silent to the Synod of Dort.* M. was appointed 1861 U. S. minister at the court of Vienna, a post from which he was recalled 1867. In 1869

he was sent as minister to the court of St. James, bu was recalled the following year. In 1874 he published *The Life and Death of John of Barneveldt, Advocate of Holland; with a View of the Primary Causes and Movements of the Thirty Years' War* (2 vols). M.'s historical works are written with conscientious research, in graphic style and sympathetic spirit, have had great popularity, and have passed through many editions.

MOTMOT, *mŏt'mŏt*, or MOMOT, *mō'mŏt:* name given to various species of birds of the genus *Prionites* (of Illiger): the classification is uncertain.

MOTOGRAPH, *mō'tō-grăf:* electrical instrument for transmission of musical tones over wires; consisting of an apparatus for transmitting the sound, and another, at the other end of the line, for receiving. The former is a tube, over one end of which a diaphragm is placed; a platinum wire connects this with a platinum or a carbon disk, the parts being held in place by adjustable springs. The strength of the electrical current which passes through this portion of the instrument is varied by the unequal vibrations of the diaphragm caused by the differing force of the sound waves by which it is struck. The receiver is a box in which is a cylinder to be turned by a handle, and which winds over it from a reel a roll of paper which has been chemically prepared. By means of a spring a platinum wire is pressed upon the paper, and passes an electrical current through it to the cylinder. The positive pole of the battery is connected with the cylinder, and the negative with the platinum wire. The friction causes a tension upon the diaphragm which is relieved by the passage of the electrical current. Another form of receiver consists of a spring connected with a mica diaphragm and a moistened chalk cylinder. When the latter is turned the diaphragm is brought under a tension the degree of which is modified as the current is passed or checked. The intermittent current makes possible the transmission of musical sounds. By means of the M. vocal music has been conveyed over a telephone wire, and distinctly heard more than 100 m. The instrument was perfected by Mr. Edison.

MOTOR, n. *mō'tŏr* [L. *mōtor*, a mover—from *motus*, moved]: that which gives motion; a mover: ADJ. in *anat.*, producing or regulating motion, applied to certain nerves and muscles. MOTORY, a. *mō-tŏr-ĭ*, or MOTORIAL, a. *mō-tō'rĭ-ăl*, giving motion.

MOTRIL, *mō-trēl':* town of Spain, province of Granada, 35 m. s. of the city of Granada, in a productive district 3 m. from the sea. Agriculture and fishing are principal employments of the inhabitants. Pop. 14.000.

MOTT, *mŏt*, GERSHOM: 1822, Apr. 7—1884, May 29; b. near Trenton, N. J. He studied at Trenton Acad., and went to New York to engage in commercial affairs. He was in the war with Mexico, served with distinction in the civil war, in which he was wounded several times, and received repeated promotions until 1865 he became maj.gen. in the army. The following year he retired to private life but was appointed 1873 maj.gen. of the National Guard of N. J., was elected state treasurer 1875, and was keeper of the state prison 1876–81. He died at New York.

MOTT, LUCRETIA: 1793, Jan. 3—1880, Nov. 11; b. Nantucket, Mass.; daughter of Capt. Thomas Coffin and wife of James M. When 15 years of age she became a teacher in a school of which Mr. M. was principal and in which she had previously studied. She removed 1809 to Philadelphia, was married there 1811, commenced teaching in that city 1817, and the following year became a minister of the Society of Friends, to which her parents and husband belonged. She was an adherent of the Hicksite branch, was an eloquent speaker, and travelled extensively on preaching tours. At the beginning of the anti-slavery movement she entered on it with great zeal, and went to London 1840 as a delegate to the World's Anti-slavery Convention. She was a leader in the Woman's Rights movements, being one of the four signers of the call for the convention at Seneca Falls, N. Y., 1848. She was an earnest worker in the temperance cause, was interested in the Woman's Medical College, Philadelphia, in the Peace Soc., and about 1868 in the establishment of Free Religious Associations in Boston. She died in the vicinity of Philadelphia.

MOTT, VALENTINE, M.D., LL.D.: 1785, Aug. 20—1865, Apr. 26; b. Glen Cove, N. Y. He attended a private seminary at Newtown, L. I., graduated from Columbia College 1806, studied in London and Edinburgh under Sir Astley Cooper and other eminent surgeons, and 1810 became prof. of surgery in Columbia College, New York. The medical faculty of this institution united 1813 with the College of Physicians and Surgeons, with which M. remained till 1826, and to which he returned after a connection for four years with the Rutgers Medical College, which was closed because of a defect in its charter. On account of impaired health he went 1835 to Europe, where he spent most of his time till 1841. He was one of the founders of the New York University Medical College, and was its prof. of surgery 1841–52. From the latter year till his death he was prof. emeritus. For a long period he was surgeon of the New York Hospital, and was also consulting surgeon to several of the other leading hospitals in the city. He was a bold and skilful operator, using the instruments with either hand, and combined with a perfect knowledge of anatomy a wide acquaintance with the laws of therapeutics which enabled him to save many lives. Sir Astley Cooper said that he

performed 'more of the great operations than any man living, or that ever did live,' yet he always declined to perform one that did not seem demanded by the exigencies of the case. He introduced various operations, invented instruments of great value, and gladly welcomed the inventions of others. He was a member of various societies, and published a number of valuable papers on surgical topics. He died in New York.

MOTTE (or MOTHE) CADILLAC', Sieur ANTOINE DE LA: see CADILLAC.

MOTTLE, v. *mŏt'l* [from MOTLEY, which see]: to mark with spots of different colors; to mark with shades of different colors, as if stained. MOTTLING, imp. *mŏt'ling*. MOTTLED, pp. *mŏt'ld:* ADJ. marked with irregular spots or streaks of different colors.

MOTTLEY, JOHN: see JOE MILLER.

MOTTO, n. *mŏt'tō* [It. *motto;* F. *mot*, a word, a motto—from mid. L. *muttum*, a mutter, a word]: short sentence or phrase added to a device, or prefixed to anything written, as to an essay or discourse, indicating its aim, or describing some rule of conduct, some custom, some opinion, or a tried sentiment. Motto, in *heraldry*, is a word or short sentence which forms an accompaniment to a coat-of-arms, crest, or household badge. Mottoes were originally attached to the badge when the family had one, or to the crest where there was no badge. In later heraldry, the practice is to place the M. in an escrol either over the crest or below the shield. A M. is sometimes a religious or moral sentiment, as 'Gardez la foi,' 'Humanitate;' it is not unfrequently a heroic exclamation or war-cry, 'Courage sans peur,' 'Forward.' In a great many cases it bears reference to the crest, badge, or some bearing of the escutcheon; and not a few mottoes are punning allusions to the family name—as Scudamore, 'Scuto amoris Divini;' Vernon, 'Ver non semper viret;' 'Fare, fac,' for Fairfax; and 'Time Deum, cole regem,' for Coleridge. Two mottoes are sometimes used by the same family—one above the crest, the other below the shield. The motto, 'Dieu et mon Droit,' which accompanies the royal arms of Great Britain, is supposed to have been a war-cry, and was used in England at least as early as the time of Henry VI. Its origin has been assigned to a saying of Richard I., 'Not we, but God and our right have vanquished France.'

MOUCHARD, n. *mô-shâr'* [F.]: a police spy; a term of contempt in France.

MOUCHETTE, n. *mô-shĕt'* [F.]: in *arch.*, a hollow or canal sunk in the soffit of a corona to form the larmier or drip.

MOUFFLON, *môf'lŏn*, or MUSMON, *mŭs'mon* (*Ovis* or *Caprovis Musimon*): the wild-sheep of Corsica, Sardinia, Cyprus, Greece, etc.; said to represent the original stock from which the domestic sheep is derived. It is about the size of a small fallow-deer, covered with hair and not with wool, except that hair of a somewhat woolly character appears in winter. The upper parts are brownish, the under parts whitish; the hair of the neck is long; the tail is very short. The horns of the male are very large, approaching to those of the Argali. The M. lives chiefly in the higher parts of mountainous regions, and is not easily approached.

MOUKDEN: see MUKDEN.

MOULD: see MOLD.

MOULD, *mōld*, JACOB WREY; 1825–1886, June 14; b. Chiselhurst, Kent, Eng. He graduated from King's College, London, 1842; studied architecture under Owen Jones, with whom he was associated in the decoration of the World's Fair building 1851; came to New York 1853 to design and superintend the building of All Soul's Church, and 1857–70 was asst. architect of public works, and designed bridges, terraces, and various structures in Central Park. He became chief architect 1870, resigned four years later to take a position in Lima, Peru, and from 1880 till his death was again on the architectural staff of the park commissioners of New York. He designed the temporary tomb of Gen. Grant, illustrated several books, and was a fine musician. He died in New York.

MOULDER, MOULDERING: see under MOLD 1.

MOULD-WARP: see under MOLD 1.

MOULIN, n. *mô'lĭng* [F. *moulin*, a mill—from mid. L. *molīnus*]: a deep crack intersecting a glacial rivulet, that has been formed into a shaft some hundreds of feet deep by the wearing action of the water.

MOULINS, *mô-lăng'*: town of France, cap. of the dept. of Allier, on the right bank of the river Allier, here crossed by a handsome stone bridge of 1,000 ft. in length with 13 semi-circular arches; 213 m. by railway, s.e. of Paris, 95 m. n.w. of Lyon. It is 740 ft. above sea-level. M. was formerly cap. of Bourbonnais. It is a clean, well-built town, with pretty promenades. The principal buildings are the cathedral of Notre Dame (for the enlargement of which the sum of one and a half million francs was granted 1852), the museum, the theatre, the public library of nearly 25,000 vols., the new town-house, the Palace of Justice, and the college. Of the old castle, built by the Duc de Bourbon 1530, only a square tower remains, which is used as a prison. M. carries on trade in coal, wood. iron, grain, wine, oil, and cattle. Pop. (1881) 20,446.

MOULMEIN, *mowl-mīn′:* town in the province of Tenasserim, British Burmah, on the Gulf of Martaban, in the e. of the Bay of Bengal, at the junction of the rivers Salween, Gyne, and Attaran: 16° 29′ n. lat., and 97° 38′ e. long. M., one of the healthiest stations in India, is a pretty specimen of an eastern town. It is divided into five districts, each under a goung or native head of police. The streets are mostly shaded with trees, principally of the acacia tribe, and the glossy jack is often seen half covering a native house, its great fruit, as large as a child's head, ripening in the sun. The principal street, about 3 m. in length, runs due n. and s. and parallel with the river Salween. The native houses are constructed in the usual Burman style of bamboo, and a thatch made of the leaf of the water-palm. All are raised on piles, according to the universal custom of the country. Men walk about with the green paper chattah, or Chinese umbrella, used throughout the provinces; the *gharie*, or India cab, dashes along, the attendant imp revelling in heat and dust.

M. is backed by a fine range of hills, on whose heights flash the gilded spires of innumerable pagodas; and here, too, are many pretty residences, commanding a fine view of the town, river, and adjacent country, which for picturesque beauty and varied scenery has few equals. M. has various churches, chapels, and missionary establishments, several charitable and educational institutions, substantial barracks, a general hospital, public library, etc. Vessels drawing 10 ft. of water can come up to M., under charge of pilots from Amherst, and at spring-tide ships of any tonnage may reach the town. The rise and fall of the water is at that time 20 to 23 ft. The mean temperature of M. (1872) was 78°—the highest being 96° in Apr., the lowest 61° in Jan. M. possesses great facilities for ship-building, and many fine vessels have lately been constructed in the building-yards of Tavoyzoo and Mopoon. The principal exports from M. are teak-timber and rice; the imports consist of general merchandise, chiefly piece-goods, hardware, provisions, and sundries. Pop. (1856) 43,683; (1881) 53,080; of which, abt. 27,000 Buddhists, 11,000 Hindus, 6,000 Mussulmans, 2,000 Christians. In nationality, beside Burmans proper, the pop. includes Eurasians or half-castes, Taliens, Chinese, Shans, Karens, Armenians, Jews, Malays, and natives of Hindustan.

See *The Tenasserim and Martaban Directory;* Winter's *Six Months in British Burmah* (Lond. 1858); Marshall's *Four Years in Burmah* (Lond. 1860); *Blue-Books.*

MOULT, v. *mōlt* [Ger. *mausen*; Dut. *muiten*, to mew or moult: Norw. *muta*, to lurk or seek covert, as a bird casting its feathers: comp. Gael. *maol*, bald, bare; *maolte*, made bald (see MEW 2)]: to cast or shed the feathers, as a bird at a particular season; to shed or cast, as the hair, skin, horns, etc., of animals. MOULTING, imp.: N. the time when birds cast their feathers; the act or progress of casting the feathers. MOULT'ED, pp.—*Moulting* is the periodical exuviation, or throwing off of certain structures, mostly of epithelial or epidermic character. Thus, in a considerable number of the *Articulata*, the external covering is thrown off, and replaced many times during life. In some minute Entomostracous Crustacea a process of moulting similar to that in crabs and lobsters, occurs every two or three days, even when the animals seem to have attained full growth. In the crabs, in which the process has been carefully observed, the *exuvium*, or cast-off shell, consists not only of the entire external covering, including even the faceted membrane which forms the anterior coat of the compound eyes, but also carries with it the lining membrane of the stomach, and the plates to which the muscles are attached. During growth, moulting takes place as often as the body becomes too large for the shell; and after the animal has attained its full size, it is found to occur at least once a year, at the reproductive season. During the early growth of insects, spiders, centipedes, etc., a similar moult is frequently repeated at short intervals, but after they have attained their full size, no further moulting takes place. In the *Vertebrata* we have examples of as complete a moulting and replacement of new skin, among frogs and serpents, as occurs in the Articulata, the whole epidermis being thrown off at least once, and, in some instances, several times yearly. In birds, the feathers are periodically cast off and renewed; in mammals generally, the hair is regularly shed at certain periods of the year; and in the deer tribe the casting off and renewal of the antlers must be regarded as a special example of moulting. In man, the continual exuviation of the outer layers of the epidermis is a process analogous to that which takes place on a more general scale in the lower animals.

MOULTON, *mōl'ton*, LOUISE CHANDLER (early pen-name, ELLEN LOUISE): b. 1835, Apr. 5, Pomfret, Conn. She was educated at a seminary in Troy, N. Y.; at the age of 15 commenced writing for the periodical press, and four years later published her first book, *This, That, and the Other*, which had a large sale. She married, 1855, William U. Moulton, a Boston publisher, has written for various magazines and furnished letters on society and literary topics to leading newspapers. Among her numerous works are *Juno Clifford*, *Some Women's Hearts*, *Random Rambles*, and *Ourselves and Our Neighbors*.

MOULTRIE, *mō'trī*, WILLIAM: 1731–1805, Sep. 27; b. England. His father, who was a Scotch physician, settled in Charleston, S. C., about 1733. In the troubles with the Cherokees 1761, M. was capt. in the state militia. During the Revolution he was, in opposition to the wishes of his tory relatives, an active patriot. He was placed in command of a regt., and 1775 was a member of the continental congress. While fortifying Sullivan's Island in Charleston harbor 1776, a British naval force of five vessels opened fire on his works, which he defended with such skill and bravery that after a conflict of more than nine hours the enemy retired. Since that time the fort has been called Moultrie in honor of its defender. He was promoted brig-gen. of the continental army, and had charge of a dept. embracing S. C. and Ga., the affairs of which he managed with great skill. He was victor, near Beaufort 1779, in an engagement with a British force larger than his own, and by holding the enemy in check enabled the people of Charleston to fortify the city when it was threatened by the British under Prevost. When, 1780, Charleston was forced to surrender, M. was taken prisoner. He was held by the British for almost two years and refused tempting bribes to desert the American cause. He was released 1782, and in the same year was appointed maj.-gen. In 1785 he was gov. of S. C. and also 1794–96. He published two vols. of *Memoirs of the American Revolution so far as it Related to the States of North and South Carolina and Georgia.* He died at Charleston, S. C.

MOULTRIE, FORT, *mō'tri* or *mōl'trē:* defensive work on Sullivan's Island, at entrance to Charleston harbor, S. C., originally constructed 1776 of palmetta logs and earth, and mounted with 26 guns. It resisted the attack of a British fleet of 9 vessels with 270 guns during the revolutionary war. It was subsequently rebuilt with masonry, but with a very low scarp-wall; and in the first days of the rebellion was abandoned by Maj. Anderson, 1860, Dec. 26, for Fort Sumter, the stronger work near by. F. M. was strengthened by the Confederates and fired the first gun in the civil war (upon the steamer *Star of the West*), 1861, Jan. 9. Since the war it has been further improved to sustain and resist modern ordnance.

MOULUWEE, n. *mûl'ŭ-wē,* or MAULAVI, n. *mûl'ē-vĭ,* or MOULVIE, n. *mûl'vē* [Ar. *maulavi*]: in *India*, a learned man; a Mussulman priest.

MOUNCH, v. *mownsh*, OF. for MUNCH, which see, MOUNCH'ING, imp. MOUNCHT, pp. *mownsht.*

MOUND, n. *mownd* [AS. and Icel. *mund*, hand, a protection or defense: AS. *mundian*, to protect: OHG. *munt*, a protection]: an artificial bank of earth or stone, raised for defense or ornament. ANCIENT MOUNDS (see AMERICA, *American Antiquities*). SHELL-MOUNDS, masses of refuse shells found along many shores, and marking the feasting-places of the early and savage inhabitants.

MOUND, n. *mownd* [L. *mnudus*, the world] : in *heraldry*, a globe, surmounted with a cross (generally) pattée. As a device, it is said to have been used by Emperor Justinian, to represent the ascendancy of Christianity over the world. The royal crown of England is surmounted by a mound, which appears first on the seal of William the Conqueror, though the globe without the cross was used earlier.

Mound.

MOUNT, n. *mownt* [F. *mont*, a hill; *monter*, to rise up —from L. *montem*, a mountain: comp. Gael. *monadh*, a heath, as on mountain] : a hill or mountain; an artificial elevation; the paper or card-board upon which a drawing is placed, and to which it is attached: V. to ascend; to rise on high; to get or place on horseback; to raise aloft; to set in framework; to tower; to climb; to scale; to furnish with horses; to embellish; to adapt or fit to, or to set upon, as *to mount a gun*, that is, to set it upon, a carriage—*to mount a precious stone*, that is, to set it in a framework of metal, as in a ring or brooch. MOUNT'ING, imp.: carrying, as a ship mounting so many guns: N. the act of mounting; the act of preparing for use; that by which anything is equipped or embellished. MOUNT'ED, pp: ADJ., raised; seated on horseback; embellished; furnished with, as with guns; placed on a carriage. MOUNT'ER, n. *-ér*, one who or that which mounts. MOUNT'INGLY, ad. *-lĭ*. TO MOUNT GUARD, to do duty and watch at a particular post for a limited time, as a sentinel. MOUNT IN BASE, in *heraldry*, representation of ground slightly raised and covered with grass, occupying the lower part of the shield.

Mount.

MOUNTAIN, n. *mownt'ĭn* or *-ān* [OF. *montaigne;* F. *montagne*—from mid. L. *montānĕă*, a mountain: L. *montānus*, belonging to a mountain—from *montem*, a mountain: It. *montagna*] : a very high hill, usually applied to heights of nearly and above 2,000 ft. (see MOUNTAINS); anything proverbially large: ADJ. pertaining to a mountain; found on mountains. MOUNT'AINEER', n. *-ēr'*, an inhabitant of a mountainous district. MOUNTAINEER'ING, n. *-ēr'ĭng*, the pursuit of the practices and habits of mountaineers; the ascending of mountains. MOUNT'AINOUS, a. *-ŭs*, full of mountains; huge. MOUNT'AINOUSNESS, n. *-nĕs*, state of being full of mountains. MOUNTAIN-ASH, a tree producing large bunches of red berries, called in Scot. the rowan tree; the *Pyrus aucupārĭă*, ord. *Rosācĕæ* (see ROWAN TREE). MOUNTAIN CORK, LEATHER, WOOD, and PAPER, varieties of Asbestos (q.v.). MOUNTAIN-DEW, Scotch whisky, especially that which has paid no duty. MOUNTAIN GREEN and BLUE, familiar terms for the green and blue carbonates of copper, mountain being at one time used as synonymous with mineral (see

CHRYSOCOLLA). MOUNTAIN-LIMESTONE, thick-bedded, marine, carboniferous limestone, familiarly applied to that found in hills, in distinction from that in the low-lying districts. It is the basement rock of the carboniferous series in s. England and in Wales, consisting of a calcareous rock loaded with marine remains, the greater part of the rock being made bodily of corals, crinoids, and shells. It has variable thickness, sometimes as much as 900 ft. In n. England and in Scotland, the marine limestones are not separated from, but alternate with, the coal-bearing strata. See CARBONIFEROUS SYSTEM. MOUNTAIN-MEAL, an infusorial earth, called also *bergmahl.* MOUNTAIN-MILK, a soft variety of carbonate of lime. MOUNTAIN PARSLEY and ROSE, plants. MOUNTAIN-SOAP, a variety of soapstone or silicate of magnesia. MOUNTAIN-TALLOW, a tallow-like mineral. A MOUNTAIN CHAIN or RANGE, a series of elevations, more or less lofty, having their bases in contact and continuous over a considerable extent of country. TO MAKE A MOUNTAIN OF A MOLE-HILL, to make great out of little difficulties. MOUNTAIN IN LABOR, much and varied preparation with but little result, from the *fable* of the mountain in labor giving birth to a mouse.

MOUNTAIN, n. *mownt'in* or *-ān*, THE [F. *la montagne*, the mountain]: in *French hist.*, popular name for the most radical party of Jacobins in the French legislature; given first to the extreme revolutionists in the national assembly 1789–91, on its removal from Versailles to Paris, where it met in the riding-hall of the Louvre. See RIGHT (RIGHT AND LEFT): MONTAGNARDS: FRANCE, *Political Parties.*

MOUNTAIN BEAVER: see SEWELELL.

MOUNTAIN MEADOW MASSACRE: atrocious act by which more than 120 people, including many women and several children, lost their lives at Mountain Meadows, Utah, 1857, Sep. 15. The murdered persons belonged to an emigrant train, and had halted at Mountain Meadows to rest and feed their stock. A large party of savages, and some 60 white men disguised as Indians, fired upon them, killing several of their number. For five days the emigrants made a vigorous defense. The next morning a small party of whites led by John D. Lee (1813–77), a prominent elder of the Mormon Church, carrying a United States flag, appeared as representatives of the attacking force and proposed a treaty. It was agreed that the emigrants should surrender their arms and property and return East. They were then led, unarmed, by Lee and others, into an ambush, where all the surviving adults and several of the children were murdered. For this crime the Mormons were believed to be responsible, but it was many years before direct evidence of the fact was obtained. Lee was tried, convicted, and sentenced to death, and the sentence was executed 1877, March 23, by shooting, on the spot at which the massacre occurred.

MOUNT'AINS: term applied indefinitely to high hills —usually of at least 2,000 ft. elevation. M. have much influence in modifying climatic conditions. Yet the amount of solid material so raised above the ordinary level is not so much as might be expected. Remembering that elevated plateaus of great extent occur in several regions, and that the general surface of the earth is considerably higher than the sea-level, it has been estimated that were the whole dry land reduced to a uniform level, it would form a plain 1,800 ft. above sea-level. And were these solid materials scattered over the whole surface of the globe, so as to fill up the bed of the ocean, the resulting level would be considerably below the present surface of the sea, inasmuch as the mean height of the dry land probably does not exceed one-fifteenth of the mean depth of the bed of the ocean.

M., especially mountain-chains, subserve important uses in the economy of nature, notably in connection with the water system of the world. M. are at once the great collectors and distributors of water. In the passage of moisture-charged winds across them, the moisture is precipitated as rain or snow. When mountain-ranges intersect the course of constant winds by thus abstracting the moisture, they produce a moist country on the windward-side, and a comparatively dry one on the leeward. This is exemplified in the Andes, the precipitous w. surface of which has a different aspect from the sloping e. plains; so also the greater supply of moisture on the s. sides of the Himalayas brings the snow-line 5,000 ft. lower than on the n. side. Above a certain height the moisture falls as snow, and a range of snow-clad summits would form a more effectual separation between the plains on either side than would the widest ocean, were it not that transverse valleys are frequent, which open a pass, or way of transit, at a level below the snow-line. But even these would not prevent the range being an impassable barrier, if the temperate regions contained as lofty M. as the tropics. Mountain-ranges, however, decrease in height from the equator to the poles in relation to the snow-line.

The numerous attempts that have been made to generalize on the distribution of M. on the globe have hitherto been unsuccessful. In America, the M. take a general direction more or less parallel to the meridian, and for a distance of 8,280 m., from Patagonia to the Arctic Ocean, form a vast and precipitous range of lofty M., which follow the coast-line in S. America, and spread out somewhat in N. America, presenting everywhere a tendency to separate into two or more parallel ridges, and giving to the whole continent the character of a precipitous and lofty w. border, gradually lowering into an immense expanse of e. lowlands. In the old world, on the other hand, there is no single well-defined continuous chain connected with the coast-line. The principal ranges are grouped together in a Y-shaped form, the general direction of which is at right angles to the new

world chain. The centre of the system in the Himalayas is the highest land in the hemisphere. From this, one arm radiates n.e., and terminates in the high land at Behring Straits: the other two take a w. course; one a little to the n., through the Caucasus, Carpathians, and Alps, to the Pyrenees; the other more to the s., through the immense chain of Central African M., and terminating at Sierra Leone. Most of the principal secondary ranges have a general direction more or less at right angles to this great mountain tract.

The inquiry into the origin of M. has received much attention. Geologists have shown that the principal agents in altering the surface of the globe are denudation, which is always abrading and carrying to a lower level the exposed surfaces, and an internal force which is raising or depressing the existing strata, or bringing unstratified rocks to the surface. Whether the changes are the small and almost imperceptible alterations now taking place, or those recorded in the mighty mountains and deep valleys that are so numerous, denudation and internal force are the great producing causes. These give us two great classes of mountains.

1. *M. produced by denudation.*—The extent to which denudation has altered the surface of the globe can scarcely be imagined. All the stratified rocks are produced by its action; but these do not measure its full amount, for many of these beds have been deposited and denuded, not once or twice, but repeatedly, before reaching their present state. Masses of rock more indurated, or better defended from the wasting currents than those around, serve as indices of the extent of denudation. One of the most remarkable cases of this kind is that of the three insulated M. in Ross-shire, Scotland—Suil Veinn, Coul Beg, and Coul More—about 3,000 ft. high. The strata of the M. are horizontal, like the courses of masonry in a pyramid, and their deep red color is in striking contrast with the cold bluish hue of the gneiss which forms the plain, and on whose upturned edges the mountain-beds rest. It seems very probable, as Hugh Miller suggests, that when the formation of which these are relics (at one time considered as Old Red Sandstone, but now determined by Sir Roderick Murchison as being older than Silurian), was first raised above the waves, it covered, with an amazing thickness, the whole surface of the Highlands of Scotland, from Ben Lomond to the Maiden Paps of Caithness, but that subsequent denudation swept it all away, except in circumscribed districts, and in detached localities like these pyramidal hills.

2. *M. produced by internal force.*—These are of several kinds. (*a.*) M. of ejection, in which the internal force is confined to a point, so to speak, having the means of exhausting itself through an opening in the surface. The lava, scoriæ, and stones ejected at this opening form a conical projection which, at least on the surface, is composed of strata sloping away from the crater. Volcanoes are

mostly isolated conical hills, yet they occur chiefly in a somewhat tortuous linear series, on the mainland and islands which inclose the great Pacific Ocean. Vesuvius and the other European volcanoes are unconnected with this immense volcanic tract. (*b.*) But the internal force may be diffused under a large tract or zone, which, if it obtain no relief from an opening, will be elevated in the mass. When the upheaval occurs to any great extent, the strata, are subjected to great tension. If they can bear it, a soft rounded mountain-chain is the result; but generally one or more series of cracks are formed, and into them igneous rocks are pushed, which, rising up into mountain-chains, elevate the stratified rocks on their flanks, and perhaps as parallel ridges. Thus, the Andes consist of the stratified rocks of various ages, lying in order on the granite and porphyry of which the mass of the range is composed. The position of the strata on such M. supplies the means of determining, within definite limits, the period of upheaval. The newest strata that have been elevated on the sides of the mountain when it was formed, give a date antecedent to that at which the elevation took place, while the horizontal strata at the base of the mountain supply a date subsequent. Thus, the principal chain of the Alps was raised during the period between the deposition of the

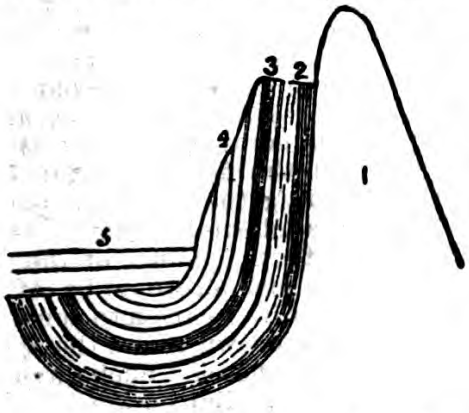


Fig. 1.—Principal System of the Alps:
1, Granitic rocks; 2, Palæozoic; 3, Secondary; 4, Tertiary; 5, Recent.

Tertiary and that of the older recent deposits. (*c.*) But there is yet another way in which the upheaving internal force operates, viz., where it acts not at right angles to the surface, but rather obliquely, and, as it were, pushes the solid strata forward, causing them to rise in huge folds, which, becoming permanent, form parallel ranges of M. The crust of the earth, in its present solid and brittle condition, is thus curved, in a greater or less degree, by the shock of every earthquake; it is well known that the trembling of the earth is produced by the progress of a wave of the solid crust; that the destruction of buildings is caused by the undulation; and that

the wave has been so evident, that it has been described as producing a sickening feeling on the observer, as if the land were but thin ice heaving over water. This mode of mountain formation is exemplified in the Appalachians (q.v.). Many other ranges have had similar

Fig. 2.--The System of the Netherlands:—
1, Silurian; 2, Coal Measures; 3, New Red Sandstone; 4, Oolite; 5, Chalk.

origin, e.g., some in Belgium and in the Southern Highlands of Scotland.

It is evident that in the last two classes the parallel ridges were produced at the same time. Elie de Beaumont generalized this, maintaining that all parallel ridges or fissures are synchronous; and on this he based a system of mountain-structure, too universal and too geometrical to be true. The synchronism of parallel fissures had been noticed by Werner, and it is now received as a first principle in mining. The converse also is held to be generally true, that fissures differing in direction differ also in age; yet divergence from a centre, and consequent want of parallelism, as in the case of volcanoes, may be an essential characteristic of contemporaneity. Nevertheless, Elie de Beaumont classified the M. of the world according to this parallelism, holding that the various groups are synchronous. The parallelism does not consist in having the same relations to the points of the compass—for these, as regards n. and s., would be far from parallel—but is estimated in its relation to some imaginary great circle, which being drawn round the globe would divide it into equal hemispheres. Such circles he called Great Circles of Reference. But he went a step further, and proposed a more refined classification, depending on a principle of geometrical symmetry, which he believed he had discovered among his great circles of reference. Probably, however, his geometrical speculations have little foundation in nature.

MOUNTANT, a. *mownt'ănt* [F. *montant*, ascending, rising]: in *OE.*, rising on high.

MOUNT DESERT, *dė-zėrt'* or *dĕz'ėrt:* island in the Atlantic Ocean, 30 m. s.e. of Bangor, Me., and belonging to Hancock co. of that state; about 14 m. long by 7 m. wide, and its southern portion is penetrated for several miles by Soames Sound. It is divided into three towns, Eden, Tremont, and Mount Desert, included in which are several villages. There are seven ridges of hills with a number of mountain peaks, of which the high-

est, Green Mountain, reaches an elevation of 1,535 ft. Among these mountains are a number of beautiful lakes, some of which are of considerable size. Until a recent period the principal interests of the island were shipbuilding, the manufacture of lumber, and fisheries; but of late it has come into prominence as a fashionable summer resort. The scenery possesses all the attraction of both sea-shore and mountains; and from the higher peaks magnificent views of a picturesque region are obtained. The island is only one m. from the mainland and has three good harbors, known as Bar Harbor, Northeast, and Southwest. On the e., in Frenchman's Bay, are five small islands known as the Porcupines, while the s.e. coast rises into enormous cliffs. The island was discovered 1605 by Champlain, who, forming his opinion of it from Bald Mountain, named it *Mont Désert*. Under the name of St. Sauveur a settlement was effected 1613 by some French colonists; but it was soon afterward broken up by Gov. Argall's expedition from Va. In 1761, Abraham Soames erected the first house of the permanent settlement, near the centre of the island. There are now several churches, a large number of schools, about a dozen post-offices, and about 50 hotels, some of great size. Bar Harbor is the largest centre of population, and the most prominent and popular of the resorts on Mt. D. island; though there are several other choice and beautiful localities rapidly gaining favor. Many costly and beautiful residences have recently been erected, and there are hundreds of cottages bolonging to visitors from the larger cities—as distant as Chicago and New Orleans—who here spend the summer months. Pop. resident (1870) 3,935, (1880) 4,657.

MOUNTEBANK, n. *mownt'ĕ-băngk* [It. *montare*, to mount, and *banco*, a bench; mid. L. *montare in banco*, to play the mountebank]: a quack-doctor who mounts a bench or stage in a public place, and there boasts of his skill in curing diseases; any boastful or false pretender.

MOUNT HOLLY, *hŏl'lĭ*: town, cap. of Burlington co., N. J.; on a branch of the Rancocas creek and branch lines of the Pennsylvania railroad; it is 18 m. n.e of Philadelphia and the same distance s. of Trenton. The streets are lighted by gas, and the town is supplied with water distributed from the hill, 200 ft. high, from which the town derives its name. It has several churches, good schools, newspapers, a home for children, the various county buildings, a thread manufactory, considerable canning industry, lumber mills, machine shops, and iron foundries. Pop. (1885) 5,006.

MOUNT HOLYOKE, *hōl'yōk*, SEMINARY AND COLLEGE: at S. Hadley, Mass.; founded by Mary Lyon (q.v.); chartered 1836; opened 1837. The founder had had a large experience in educational work; was principal of the seminary from its opening till her death 1849; instructed more than 3,000 pupils; and combined training in domestic labor with an advanced curriculum. Prior

to 1836 but two schools for girls exclusively, had been chartered in Mass., Ipswich Acad. 1828, and Abbott Acad. 1829; but Mary Lyon's seminary was the first legally authorized to hold endowment funds, and designed to furnish young women a thorough and complete collegiate education. For 50 years the voluntary gifts were expended on the buildings, the running expenses being met by charges for board and tuition. In 1885 the national assoc. of Holyoke alumnæ resolved to raise an endowment fund of $20,000, for the chair of the principal, and at the semi-centennial of the seminary, 1887, June 22–3, this fund, named after the founder, amounted to $28,150, and it has been increased largely since. By act of legislature 1888, Mar. 8, the name of the institution was changed as above, and it was authorized to confer such honors, degrees, and diplomas as are granted or conferred by any univ., college, or seminary of learning in the commonwealth.' The grounds comprise nearly 70 acres, and include a small lake, furnished with boats and a boat-house for the use of pupils. The main building fronts w., has at each end a wing extending e., and these wings are connected by the gymnasium, thus inclosing a quadrangle. The library, a fire-proof building, is connected with the main building, and has been enlarged recently. The Lyman Williston Hall (completed 1876) contains rooms for lectures and recitations, extensive cabinets, chemical laboratory, valuable philosophical apparatus, and an art gallery occupying the entire upper floor. There is also an astronomical observatory (completed 1881), which contains a telescope with an 8-in. object-glass, meridian circle, astronomical clock, chronograph, sextant, spectroscope, and other apparatus, the ground, building, and equipment being the gift of A. L. Williston in memory of his son, John Payson Williston. The prescribed course is for 4 years, with special courses in French, German, Greek, and some of the sciences; and is substantially the same as that of other colleges, with a higher range of seminary studies. The roll of graduates numbers 2,000, which, with 4,000 non-graduates, makes a past membership of 6,000, three-fourths of whom have been teachers and 200 foreign missionaries. The principals or prominent teachers of 61 seminaries, academies, and high schools of note, have been students at Mount Holyoke. In 1837 there were 1 principal, 1 associate, 2 teachers, and 3 assistant pupils in the faculty. In 1887–8 there were 40 professors and instructors, 314 students, 12,171 vols. in the library, grounds and buildings valued at $298,000, productive funds $205,000, income therefrom $13,350, tuition fees $52,300, and benefactions $15,000. 1889, Mar., Miss Mary Ann Brigham was elected to the presidency; but to the great grief of many friends and of all well-wishers of the college she was killed in a railway accident near New Haven, in June.

MOUNTMELLICK, *mount-mĕl′ĭk:* market-town and seat of poor-law union, Queen's county, province of Leinster, Ireland; on the river Owenass, a branch of the Barrow, 47 m. w.s.w. from Dublin. The town has long been a chief seat of the Society of Friends, who established a manufactory of coarse woolen friezes and tweeds, by which many poor children are employed. M. was also the seat of other manufactures, especially a foundry, a machine-factory, and a beet-root sugar factory; but these were not successful. Pop. (1881) 3,126.

MOUNT PLEASANT: city, cap. of Henry co., Io.; on the Chicago Burlington and Quincy and the St. Louis Keokuk and Northwestern railroads; 28 m. w.n.w. of Burlington, 110 m. e.s.e. of Des Moines. It is on a high plateau; surrounded on three sides by Big creek, an affluent of the Skunk river; and is the centre of trade for a large agricultural country. It contains 2 national banks (cap. $200,000), high school, graded public schools, 12 churches, 1 daily, 4 weekly, and 1 monthly publications, several flour mills, sash and blind and wagon factories, gas works, and tannery. It is the seat of one of the state hospitals for the insane, and of Iowa Wesleyan Univ., German College, and a female seminary. The univ. (Meth. Episc.) was opened 1852, and had 1885–6, 13 professors and instructors, 86 students in the preparatory dept. and 105 in the collegiate, 4 years' course, theol. and law depts. and school of pharmacy, admitted both sexes, and was under the presidency of the Rev. J. T. McFarland, D.D. German College (Meth.Episc.) was opened 1873, and had 1887–8, 5 professors and instructors, 82 students in the preparatory dept. and 13 in the collegiate, grounds and buildings valued at $15,000, and productive funds $20,000, admitted both sexes, and was under the presidency of the Rev. John Schlagenhauf. The city was visited by a cyclone 1882, June 17, which caused the loss of several lives and the destruction of property valued at $150,000. Pop. (1870) 4,245; (1880) 4,410; (1885) 3,837; (1890) 5,000.

MOUNT ST. ELIAS, *ē-lī′as:* volcanic mountain in Alaska, on the boundary line of British Columbia and near the Pacific Ocean; lat. 60° 18′ n., long. 140° 30′ w. Its top is constantly covered with snow. It is the highest point in N. America, according to recent measurements, 19,500 ft. above sea-level.

MOUNT VERNON, *vĕr′non:* village in Eastchester tp., Westchester co., N. Y.; on the Bronx river, about midway between Long Island Sound on the e. and the Hudson river on the w., and on the New York New Haven and Hartford, and the Harlem division of the New York Central and Hudson River railroads, about 15 m. n.n.e. of New York City Hall. It adjoins New York on the n., and is the home of a large number of merchants and others doing business in the city. It is being rapidly built up, and has become a very desirable place of residence. The number of inhabitants has about

doubled in the past six years, while the value of real estate outside the closely built portion is said to have quadrupled in that time. An abundant supply of water is obtained from the Hutchinson river, near Pelhamville, and is distributed from reservoirs to all parts of the town. The streets and buildings are lighted with gas; and an electric lighting company is (1890) putting in a large plant. Among the fine buildings are the Young Men's Christian Assoc. hall which cost $40,000; a Meth. Episc. church costing about $50,000; and a Presb. church in process of erection at a cost of $60,000. Other religious denominations are well supplied with church buildings; there are large public schools; one semi-weekly and three weekly newspapers, one of the latter printed in German; two state banks and one savings bank. There is considerable manufacturing, including carriages, horn and rubber jewelry, glue, and pens. Several villages in the tp., formerly separate, are being merged into one, and communication with various points is furnished by a street railroad. The question of obtaining a city charter is being agitated, as is also that of annexation to New York. Pop. (1890) estimated, 14,000.

MOUNT VER'NON: city, cap. of Knox co., O.; on the Vernon river, at the junction of the Cleveland Mount Vernon and Delaware, and a division of the Baltimore and Ohio railroads; 45 m. n.e. of Columbus. It was organized as a town 1805, has a large number of churches and schools, a fine court-house, banks, newspapers, and many beautiful residences. The streets are lighted with gas, and the town has an extensive trade. Abundant water power is supplied by the river, and there are extensive manufactures of wagons, carriages, twine, linseed oil, and flour; with saw mills and machine shops, etc. Kenyon College is about six m. distant. Pop. (1870) 4,876, (1880) 5,249.

MOUNT VER'NON: estate of George Washington in Fairfax co., Va.; on the w. bank of the Potomac river, 15 m. below Washington, 9 m. from Alexandria. The mansion was erected 1743 by Lawrence Washington, elder brother of the president, by whom it was inherited and greatly improved. It is on a hill, fronted with a beautiful lawn and commanding a fine and extensive view of the Potomac. The house is 96 ft. long, two stories high, and has a piazza with columns along the front. It was the home of Washington from his boyhood until his death. He was buried in the family vault s. of the mansion; but, 1830, the remains were placed in a new vault built near a ravine a few hundred yards from the house. At the death of the president, M. V. came into the possession of Bushrod Washington, who left it at his death to a nephew, John A. Washington. The latter sold 1858 the mansion and 200 acres of land for $200,000 to the Ladies M. V. Assoc. to be kept forever as a place of public and patriotic interest. In case of failure of the assoc. to fulfil the conditions imposed by

the contract the mansion will become the property of the state of Virginia. The mansion contains many articles of historic interest, and some of the rooms have been kept as they appeared at the time of Washington's death; but a large part of his books are now in the Boston Athenæum. M. V. is in a township of the same name which has pop. about 2,500.

MOURN, v. *mōrn* [Goth. *maurnan;* Icel. *morna*, to be troubled about, to mourn: OHG. *mornen*, to grieve: F. *morne*, dull, downcast]: to grieve for; to lament; to grieve; to be sorrowful; to wear the garb of sorrow. MOURN'ING, imp.: ADJ. employed to express sorrow or grief; worn, as appropriate to the condition of one mourning: N. the act of sorrowing or expressing grief; lamentation; garb assumed on the death of a relative or friend (see below). MOURNED, pp. *mōrnd.* MOURNER, n. *mōrn'ér*, one who is grieved at any loss or misfortune; one who attends a funeral in the habit of mourning. MOURN'INGLY, ad. *-lĭ*, with the appearance of sorrowing. MOURN'FUL, a. *-fûl*, expressive of grief; having the appearance of sorrow; causing sorrow; sorrowful; doleful; sad. MOURN'FULLY, ad. *-lĭ*, in a mourning manner. MOURN'FULNESS, n. *-nĕs*, the state of being mournful; the show or expression of grief. MOURNING-COACH, a dark-colored carriage with black horses and trappings for the accommodation of mourners attending a funeral. MOURNING RIGHT, a broad metal bordering for mourning columns or paragraphs in newspapers.—SYN. of 'mourn': to deplore; bewail; bemoan; sorrow;—of 'mournful': lugubrious; heavy; grievous; calamitous; afflictive; gloomy; dejected; moody; melancholy.

MOURNE MOUNT'AINS: see DOWN, COUNTY OF.

MOURN'ING: particular habit worn to express grief, especially for the decease of kindred or friends. The usages regarding M. have varied much at different times and in different countries. Among the Jews, the duration of M. for the dead was generally 7 days, sometimes protracted to 30 days; and the external indications of sorrow consisted in weeping, tearing the clothes, smiting the breast, cutting off the hair and beard, lying on the ground, walking barefoot, and abstaining from washing and anointing the person. Among the Greeks the period was 30 days, except in Sparta, where it was limited to 10. The relatives of the deceased secluded themselves from the public eye, wore a coarse black dress, and in ancient times cut off their hair as a sign of grief. Among the Romans the color of M. for both sexes was black or dark-blue under the republic. Under the empire, the women wore white, black continuing to be the color for men, who did not cut off the hair or beard as in Greece. Men wore their M. only a few days; women a year, when for a husband or parent. The time was often shortened by a victory or other happy public event, the birth of a child, or the occurrence of a family festival. Public calamity, such as a defeat, or the death of an emperor or person of

note, occasioned a public M. which involved a total cessation of business, called Justitium. In modern Europe and in the United States the ordinary color for M. is black; in Turkey, violet; in China, white; in Egypt, yellow; in Ethiopia, brown. It was white in Spain until 1498. M. is worn of different depth or degree, and for different periods of time, according to the nearness of relationship of the deceased. On the death of a sovereign or member of the reigning house, a court M. is ordered; and often a general mourning.

MOUSA, *mô'sâ:* island of Shetland, remarkable for an object of antiquity styled Burgh-Mousa, which consists of a round tower of the class known in n. Scotland as Pictish towers. Burgh-Mousa occupies a knoll close by the rocky sea-beach, from which materials for its construction had been taken. The whole fabric is of flat slabs of clay-slate, which have been easily piled together in a compact mass without mortar. In exterior figure, the tower is round, inclining inward about half-way up, and then bulging out near the top. Near the foundation, its circumference is 158 ft., and it is about 40 ft. in height. On the side next the sea there is a doorway, the only exterior aperture. If there were ever any door-posts, they have disappeared; it is conjectured, however, that, instead of employing a door, the inmates had, on emergencies, built up the opening, for which there is abundance of loose materials at hand. Entering the doorway, we find the wall 16 ft. thick, and looking upward, feel as if we were at the bottom of a well, for the circular interior has no flooring, and the top is open to the sky. Opposite the doorway, is an entrance to a passage and stair which wind upward within the thickness of the wall, to the summit of the building. At different places there are recesses, or galleries, leading off from the stair, lighted by apertures to the interior; such dismal holes being all that we find in the way of apartments. It is customary to speak of an outer and inner wall; but the two walls, if we so distinguish them, are so firmly bound together by the stair and otherwise, as to afford a united resistance to assault. Obviously, the structure was used as a retreat in case of attack from foreign enemies, against whom missiles could be showered down from the species of battlement formed by the top of the well-knit walls. According to tradition, the tower of M. was occupied by Erland, a Norwegian Jarl, about 1154, when it successfully endured a siege undertaken to recover a runaway lady; but how any lady could have found accommodation in such miserable quarters, it is difficult to conjecture. The Soc. of Scottish Antiquaries has repaired this fine memorial of a former state of society in Shetland. From its comparatively complete state, Burgh-Mousa is considered a good specimen of the Pictish towers, so called.

MOUSE, n. *mows* [Ger. *maus;* Dut. *muis;* Icel. *mús;* Dan. *muus*, a mouse: Gr. and L. *mus*, a mouse]: active and mischievous little rodent that infests houses, granaries, etc., or lives in fields: V. *mowz*, to watch for and catch mice, as a cat. MOUS'ING, imp.: ADJ. catching mice; in *OE.*, stealthy; sneaking; cat-like. MOUSED, pp. *mowzd.* MOUSY, a. *mowz'ĭ*, abounding in mice. MOUSER, n. *mowz'ér*, a cat that is a good catcher of mice. MOUSE-BUTTOCK, a term applied to certain parts of beef. MOUSE-EAR, a plant so called from the shape and velvety surface of the leaves; the *Hiera'cĭŭm pilosel'la*, ord. *Compositæ.* MOUSE-HAWK, a bird that feeds on mice. MOUSE-HOLE, the nest or den of a mouse. MOUSE-TAIL, a small wild plant with little green flowers; the *Myosūrus cristātus*, ord. *Ranunculācĕæ.* MOUSE-TRAP, a contrivance for catching mice. MICE, n. plu. *mīs* [AS. *mys;* Icel. *myss*, mice]: more than one mouse.

MOUSE (*Mus*): genus of rodent mammalia of family *Muridæ* (q.v.), having three simple molar teeth in each jaw, with tuberculated summits, the upper incisors wedge-shaped, the lower compressed and pointed, the fore-feet with four toes and a rudimentary thumb, the hind-feet five-toed; the tail long, nearly destitute of hair, and scaly. This genus includes rats (q.v.) and mice; the smaller species bearing the latter name. The original habitat was probably India, whence these animals have followed man in his migrations to all parts of the inhabited world. The various American genera differ but slightly from the European: they are classed usually as Sigmodontes.—The COMMON M. (*Musculus*), abundant everywhere, has great fecundity; as most of its congeners have: Aristotle made the experiment of placing a pregnant female M. in a closed vessel filled with grain, and found in a short time no fewer than 120 mice in the vessel. There are several varieties of this species. That generally found in houses is smaller, and not so dark in color, as that common in barns and farm-yards. A white variety sometimes occurs, and has been perpetuated in a half-domesticated state. The common brown kind is, however, at least as easily tamed, and readily becomes familiar enough. A pied variety is frequent in India.—Much has been written about the singing powers of the M.; it being asserted, on the one hand, that mice frequently show love for music, and a power of imitating the song of birds; while, on the other hand, it is alleged that the singing of mice is merely the consequence of throat disease.—The M. makes a nest like that of a bird in the wainscot of a wall, among the chaff or feathers of a bed, or in any similar situation. The litter is generally from six to ten in number.—The WOOD M., or LONG-TAILED FIELD M. (*M. sylvaticus*), is a little larger than the Common Mouse. Its tail is longer, its ears also longer; its muzzle is rather longer; its underparts are lighter in color, than in the common mouse. It is a grievous pest in gardens and fields. It lays up stores of grain and other food, either in thick tufts of

grass, or just under the surface of the earth. The quantity of food laid up in such stores is often wonderfully large. The Field M. is timid, gentle, and easily tamed. —One of the smallest of quadrupeds is the HARVEST M. (*M. messorius*), whose head and body are only 2½ inches in length, the tail being almost equally long, and to some degree prehensile; the general form elongated and slender, the head narrow, the ears not large. It

1, Harvest Mouse (*Mus messorius*); 2, Long-tailed Field Mouse (*Mus sylvaticus*).

makes its nest among the stalks of wheat, reeds, or other grasses, weaving together the leaves and panicles of grasses, the leaves being for this purpose cut into shreds by its teeth. The nest is a very curious structure formed by mere intertwining, without cement of any kind. It is generally suspended among the stalks. It is globular, or nearly so, and entrance to it is through an opening, which almost completely closes up again.—A still smaller species of M. (*M. pumilus*) is found in s. Europe.—An American species, the WHITE-FOOTED M. (*M. leucopus*), common in most parts of N. America, and intermediate in its habits between the Common M. and the Field M. is said to depart from houses whenever either the cat or the brown rat appears in them.—The Barbary M. (*M. Barbarus*) approaches in size to the rats, and is distinguished by its longitudinally striped fur.

The name M. is often popularly given to animals considerably different from the true mice, as the *Voles* (q.v.).

MOUSE'-EAR CHICK'WEED (*Cerastium*): genus of plants of nat. ord. *Caryophyllaceæ*, having five sepals, five bifid petals, ten stamens, five styles, and a capsule bursting at the top with ten teeth. The species are numerous, natives of temperate and cold countries in all parts of the world. Some are among common weeds; others, having larger flowers, are occasionally planted in flower-borders and on rock-works. The form and hairiness of the leaves of some of the British species have given rise to the popular name.

MOUSSELINE': see MUSLIN.

MOUSSELINE-DE-LAINE, n. *mûs-lēn'dĕ-lān'* [F. muslin of wool]: a woolen fabric of very light texture, used for ladies' dresses—so named as originally made at *Mossoul.*

MOUSTACHE, n. *mûs-tâsh'* [F. *moustache*—from It. *mostaccio* or *mostazzo*, snout, face: mod. Gr. *mustax*, mustaches; *mustaki*, whiskers: Gr. *mustax*, the upper lip; *mastax*, the mouth]: hair worn over the upper lip by men; usually in the plu. MOUSTACH'ES, *-tâsh'ĕz:* also spelt MUSTACHE.

MOUTH, n. *mowth*, MOUTHS, n. plu. *mowthz* [Goth. *munths;* Icel. *munnr;* Ger. *mund;* Swiss, *munzen;* L. *mandĕrĕ*, to chew]: the opening in the head of an animal by which food is received, and containing the organs of mastication and of voice; the instr. of speech; cry; voice; any opening or channel by which a thing is received or discharged, as of a vessel, a well, or a cannon; an entrance; the part of a river or creek where its waters join those of a sea or other large body of water: V. *mowth*, to utter with an affected swelling voice; to rant; to utter a word fully and roundly; to vociferate; to seize in the mouth; to attack with reproachful language. MOUTH'ING, imp. *-ĭng:* ADJ. uttering with an affected swelling mouth: N. an affected swelling manner of speaking. MOUTHED, pp. *mowthd.* MOUTHER, n. *mowth'ĕr*, an affected speaker. MOUTHLESS, à. *mowth'lĕs*, without a mouth. MOUTH'FUL, n. *-fûl*, as much as the mouth can contain; a small quantity. MOUTH-HONOR, outward civility; compliments that are insincere. MOUTH'PIECE, n. in a wind-instrument of music, the piece for the mouth; one who utters opinions on behalf of others; a spokesman. TO MAKE MOUTHS, *mowths*, to make grimaces or wry faces. DOWN IN THE MOUTH, mortified; chop-fallen. TO STOP THE MOUTH, to silence or confound.

MOUTH, Diseases of the: diseases occurring in various forms, but usually beginning with inflammation of the mucous membrane. The inflammation may be equally diffused, or may be confined chiefly or entirely to the mucous follicles. When diffused, it may either present no peculiar secreted product, or the surface may be covered with a curb-like secretion, or with patches of false membrane. It may further be attended with eruption, ulceration, or gangrene, any one of which may impress a special character on the disease, or it may present peculiarities from the nature of its exciting cause, as when it accompanies scurvy, or is the result of mercurial action.

The following are principal forms of inflammation of the mouth, or *stomatitis* (Gr. *stoma*, the mouth), as it is termed by nosologists. 1. *Common Diffused Inflammation*, which appears in reddened, somewhat elevated, patches, and sometimes occupies large portions of the surface of the mouth. It is more commonly a complication of other diseases than an original affection. When of the latter character, it is generally caused by the direct action of irritants, as by scalding drinks, corrosive substances introduced into the mouth, accumulated tartar on the necks of the teeth, etc. In ordinary cases, cooling and demulcent liquids (such as cream of almond oil) applied locally, an occasional saline cathartic, with a soft and chiefly farinaceous diet, constitute the necessary treatment.

2. *Diffused Inflammation, with curd-like exudation*, is almost entirely confined to infants: see **Thrush**, its popular name.

3 *Inflammation of the Follicles*, and *Eruption or Vesicular Inflammation*: see **Aphthæ**.

4. In *Ulcerative Inflammation, Cancrum Oris*, or *Canker*, an ulceration, often of considerable size, with grayish surface and an inflamed edge, appears on the gums, or inside of the cheeks or lips. The swelling of the adjacent parts is often so considerable as to be apparent externally. There is a copious flow of saliva, and the breath is very offensive. The disease generally occurs in children from two to six years of age. The ulcer may continue for weeks, or even months, but always yields to treatment. The febrile symptoms and the constipation usually present must be combated in the ordinary way. Perhaps the best general treatment is the administration of chlorate of potash, and washing the mouth with a solution of chlorinated soda.

5. The canker above noted is sometimes the first stage of a much more serious affection—*Gangrene of the Mouth*, which usually occurs in children between the first and second dentition. A sloughing ulcer forms upon the gums, or some other part of the mouth. This slough spreads, the breath becomes extremely fetid, the disease extends to the alveolar processes, and the teeth are loosened and fall out. Inability to take the food is followed by exhausting diarrhœa, and death is the usual termination.

For other affections of the mouth, see **Salivation**; **Scurvy**.

MOVE, v. *môv* [L. *movērĕ*, to move or stir: It. *movere*, to move: F. *mouver*, to stir the mold in a garden; *mouvoir*, to move, to stir]: to carry or convey from one place to another; to pass from one place to another; to walk; to change the posture of the body or the position of a part; to put into motion; to arouse; to provoke; to affect; to agitate; to prevail on; to persuade; to touch pathetically; to walk or march; to change a residence; to propose or bring forward for consideration or acceptance; to have vital action—as, 'in Him we live, and *move*, and have our being;' in *OE.*, to make angry: N. the act of transferring from one place or spot to another, as in chess or draughts; a movement; in *familiar language*, a scheme; an artifice; a certain amount of work, or fixed time, forming the unit in reckoning the wages of a glassmaker. MOVING, imp.: ADJ. changing place; having motion; impelling; persuading; stirring the passions or affections; touching; fitted to excite the passions or the affections. MOVINGS, n. plu. *môv'ĭngz*, motives; impulse. MOVED, pp. *môvd*. MOV'ER, n. *-ĕr*, one who or that which moves; a proposer. MOVE'LESS, a. *-lĕs*, not to be put out of place. MOVEMENT, n. *môv'mĕnt*, the act or manner of moving; a passing; any change of position; motion; excitement; any single part in a musical composition; the wheelwork of a watch; an agitation or proceeding undertaken to accomplish certain purposes, or to effect desired changes, as in political or ecclesiastical affairs, or in matters affecting social life. MOV'INGLY, ad. *-lĭ*, in a moving manner; pathetically; in a manner to excite or affect the passions. MOV'INGNESS, n. *-nĕs*, power to affect the passions. MOVING-POWER, an agent used to impart motion to machinery, as water, steam, wind, etc. MOVING or MOTIVE FORCE, in *mech.*, the cause of the change of velocity in the motion of a body; a force equal to the product of the mass of a body into the accelerating force. MOV'ABLE, a. *-ă-bl*, that may be moved or carried from one place to another; susceptible of motion; shifting from one time to another; portable. MOV'ABLY, ad. *-blĭ*. MOV'ABLENESS, n. *-bl-nĕs*, the state or quality of being movable; susceptibility of motion. MOV'ABLES, n. plu. *-ă-blz*, any kind of properry which can be carried about, as distinguished from houses or lands; goods; furniture: in Scotch *law*, personal as distinguished from heritable property—movables in intestacy passing to the next of kin (see KIN) while heritage passes to the heir-at-law. Besides corporal things, movables include debts, rights of action, etc. MOVABLE FEASTS, certain church festivals reckoned from Easter, the Lord's Day first after the full moon which happens on or next after Mar. 21 (see FESTIVALS: EASTER).—SYN. of 'move, v.': to incite; stir; propose; recommend; touch; trouble; influence; actuate; impel; instigate; prompt; induce; incline; offer.

MOVEMENT CURE: system for preserving health and curing disease by exercise carefully adapted to the special requirements of the case. It was devised by Peter Henrik Ling (1776–1839) of Sweden, and for a long time was popularly known as the Swedish M. C. The method is founded on the well-known principle that the exercise of any set of muscles will, if properly directed, increase their strength. It differs from ordinary gymnastics, and the common forms of exercise and recreation, in bringing into use the particular muscles which may need exercise and development, while the remaining portions of the body are allowed to rest, or are used to only a silght extent. It is adapted specially to those whose daily occupations actively employ only a portion of the muscular system, leaving many groups of muscles so slightly used that the waste matter is not promptly or thoroughly eliminated. In the unused muscles the processes of repair are retarded, the nerves which enter them are irritated and in time the muscular weakness inseparable from want of exercise is followed by a greater or less degree of disturbance of the nervous system. Ordinary exercise is likely to tend toward the development of the muscles which are already strong, rather than of those which are weak. There is danger also of carrying exercise in the gymnasium, or even such recreations as walking or rowing, to an extent harmful rather than beneficial. In the M. C. the degree as well as the kind of exercise is carefully regulated to meet the requirements of the individual. Periods of exercise are followed by intervals of rest. In the one the blood is brought to the weakened part, while during the other the nutritive forces are allowed to carry on the processes of repair. This tends to strengthen the muscles which are weak without exerting them too severely, and gradually to bring them up to their proper tone. An effort has been made so to arrange the various movements that they shall be diverting, and thus combine recreation with the exercise. A large number of the movements can be performed without an apparatus and with but slight inconvenience. The abdominal and pectoral muscles are exercised and strengthened by repeatedly raising the head while lying on the back, and many sets of muscles are easily brought into use while standing or sitting. For acute diseases the M. C. is, of course, not adapted; and there are many physical ills of less aggravated form which need treatment along other lines. But there remain various forms of weakness and disease, and numerous deformities, which are greatly benefited by a judicious use of the M. C. The inventor of the system was highly honored in his own country, the Swedish govt. founding, 1814, an institution for its practice, and it has been adopted in many private hospitals. In other countries the method has, with some modifications, come into use to a considerable extent.

MOVILLE *mō-vĭl′:* small Irish port just inside the mouth of Lough Foyle, county Donegal, 18 m. n.n.e. of Londonderry. Here some of the great ocean steamers call on their way between Liverpool and Canada. M. is a popular watering-place. Pop. (1881) 1,129.

MOV′ING PLANT (*Desmodium gyrans*): plant of nat. ord, *Leguminosæ*, sub-ord. *Papilionaceæ*, native of India, remarkable, as are some other species of the same genus, for the spontaneous motion of the leaves. The leaves are ternate, the lateral leaflets much smaller than the terminal one. These lateral leaflets are in constant motion, being elevated by a succession of little jerks till they meet above the terminal leaflet, and then moving downward by similar rapid jerks to the leaf-stalk. Sometimes one leaflet is in motion and the other at rest. Sometimes a few may be seen moving, while there is a partial cessation in the other leaves of the plant. A high wind causes this cessation more than anything else; the movements are more languid in a very hot dry day, and are seen in their perfection in warm moist weather. The terminal leaflet does not remain absolutely at rest, though its movements are not like those of the lateral ones, but it oscillates slowly from one side to the other. The remarkable movements of this plant are fully discussed and illustrated in Darwin's interesting work, *The Power of Movement in Plants* (1880).

MOW, v. *mō* [AS. *mawan:* Dut. *maeden;* Ger. *mähen;* OHG. *mâjan*, to mow (see MEADOW)]: to cut the grass from, as a field; to destroy sweepingly or in great numbers; to cut and make grass into hay. MOW′ING, imp.: N. act of cutting down with a scythe. MOWED, pp. *mōd*, or MOWN, pp. *mōn*. MOW′ER, n. *-ėr*, one who mows. MOWING AND REAPING MACHINES: see REAPING.

MOW, n. *mow* or *mō* [AS. *mûcg* or *mowe*, a heap, a stack: Icel. *mugr*, a mow of hay; *muga*, a heap of hay; *muga*, to gather into heaps]: a pile of hay or sheaves of grain stored in a barn or under cover; the place where corn or hay is stored: V. to pile up or store hay, etc., under cover. MOW′ING, imp. MOWED, pp. *mōd* or *mowd*. MOW-BURNT, applied to hay that has heated by being heaped together in a damp state.

MOW, n. *mô* or *mow* [F. *moue*, a wry face: O. Dut. *mouwe*, the protruded under lip]: in *OE.* and *Scot.*, a mouth; a wry mouth: V. to make mouths or grimaces. MOW′ING, imp. MOWED, pp. *môd* or *mowd*.

MOWER, *mow'ér*, JOSEPH ANTHONY: 1827, Aug. 22—1870, Jan. 6; b. Woodstock, Vt. After obtaining a common school education he learned the trade of carpenter. He entered the army during the war with Mexico, and was promoted at various times, till, 1861, he reached the rank of captain. He was wounded and captured by the Confederates at the battle of Corinth, Miss. He was chosen col. 1862 of a Mo. regt., and was promoted brig.gen. of vols. before the close of the year. He rendered excellent service at the attack on Vicksburg, and with Gen. Sherman in his march to the sea. He was promoted maj.gen. 1864. At the time of his death he was in command of the dept. of Louisiana. Gen. Sherman said of him, that 'a better soldier or a braver man never lived.' He died at New Orleans.

MOXA, n. *mŏks'ă* [F. *moxa*, probably a word of Eastern origin]: the down of a Chinese plant. In *med.*, a small cone of inflammable matter, used in Eastern countries as a cure for the gout or deep-seated pain by burning it on the skin; a small mass of combustible vegetable matter, employed for effecting cauterization. This peculiar form of counter-irritation was early practiced in the East, particularly by the Chinese and Japanese, from whom it was learned by the Portuguese. One or more small cones, formed of the downy covering of the leaves of *Artemisia Moxa* (as used by the Chinese), or of the pith of various plants (as of the common sunflower), or of linen steeped in nitre, are placed on the skin over the affected part, and the ends remote from the skin are ignited. The combustion gradually proceeds through the cone and forms a superficial eschar on the skin. The surrounding parts must be protected by a pad of wet rag, with a hole in it for the moxa.

MOYA, n. *moy'ă* [Sp.]: in *S. Amer.*, a term applied to the fetid sulphurous mud poured out from certain volcanoes.

MOY'LAN, STEPHEN: 1734–1811, Apr. 11; b. Ireland. He was well educated, and after spending a few years in England travelled in America, and finally engaged in mercantile pursuits in Philadelphia. At the beginning of the Revolution he joined the patriot army, and was soon appointed aide-de-camp by Washington. At the request of the latter, M. was appointed by cong. quartermaster-general. He soon resigned this position and raised an independent regt. of cavalry, with which he served at Valley Forge, and in subsequent campaigns at the north and south. Before the close of the war he was commissioned brig.gen. After the war he was interested in agriculture and trade, held various public offices, and aided in the establishment of the soc. known as the Friendly Sons of St. Patrick. He died in Philadelphia.

MOZAMBIQUE, *mō-zam-bēk′* : territory on the e. coast of s. Africa; a colonial province of Portugal, under a gov.gen., though the actual possessions of Portugal consist of only a few stations, and her authority in the country is inconsiderable. It extends from Cape Delgado, lat. 10° 41′ s., to Delagoa Bay, 26° s., about 1,200 m. along the coast, with no definite limit on the west. The chief river, the Zambesi, divides it into two portions —M. proper on the n., and Sofala on the s. The coasts, which comprise large tracts of cultivated soil, yielding rich harvests in rice, are fringed with reefs, islands, and shoals; and between Delagoa Bay and Cape Corrientes, and from M., the principal station, to Cape Delgado, the shores are high and steep. The forests yield valuable ornamental woods; ivory is obtained from the hippopotami that inhabit the marshes; and gold and copper are found and worked. The elephant, deer, and lion inhabit the jungle; crocodiles are found in the rivers, and numerous flamingoes on the coasts. Fish and turtle are caught in great quantities on the islands and reefs; pearl-fishing is a source of considerable profit; cattle, sheep, and goats are numerous, and the principal exports are grain, gold-dust, honey, tortoise-shell, cowries, gums, and amber. The rainy season lasts from Nov. to Mar.: the summer heat is very great, and the climate, fine in the elevated tracts, is unhealthful on the low shores and in the swampy districts. Besides numerous fruits and vegetables, the grains are rice, millet, maize, and wheat. The govt. is inefficient, being, in most places, more in the hands of native chiefs than of the Portuguese. In former times the slave-trade was carried on here extensively; and 1846–57 four governors-gen. were removed by their govt. for countenancing, if not actively engaging in it. The colony is divided into six districts, and is ruled by the gov.gen. and his sec., assisted by a *junta*. Religion and education are supervised by about 12 Rom. Cath. priests, but seem to be at the lowest ebb. The Portuguese arrived here 1497, attracted by rumors of the wealth of the country and the excellence of its ports. The principal settlements are Mozambique, Quilimane, Sena, and Tete. Pop. 300,000.

MOZAMBIQUE′, properly St. Sebastian of Mozambique: town, capital of the Portuguese territory of M., on a small coral island, on the e. coast of Africa, close to the shore, lat. 15° 2′ s. It is defended by three forts, has houses of stone, flat-roofed and unattractive, and contains a large square in which the palace of the gov. and the custom-house are the chief buildings. In former times all the markets of the world were supplied with slaves from Mozambique. Its commerce, now inconsiderable, is chiefly with India, and is carried on by Arabs. Pop. 8,500, of whom 7,000 are slaves, 270 Christians, 102 Banians from Hindustan, and 1 150 Arabs.

MOZAMBIQUE′ CHANNEL: part of the ocean between the island of Madagascar and the s.e. coast of Africa; about 1,000 m. in length, and about 450 in average breadth. At its n. extremity are the Comoro Islands. Over the n. portion the monsoons blow. Black whales, yielding spermaceti, abound.

MOZARABIAN, *mŏz-a-rā′bĭ-an* (or MOZARABIC, *mŏz-a-răb′ĭk*), LITURGY: liturgy of the Hispano-Gallican group—ascribed by some to the apostles, but by the majority of writers to St. Isidore of Sevilla, who redacted it, in co-operation with the Fathers of the 4th Council of Toledo, 633—originally in use among those Christian inhabitants of Spain (Muzarabians, Mostarabians, Mustarabians) who remained faithful to their religion after the Arabic conquest. Its real origin is lost in antiquity. It is called also the Gothic Liturgy, and differs in important respects from the Roman. Gregory VII. first compelled most of the Spanish churches and convents to adopt the common uniform liturgy of the Roman Church, near the end of the 11th c. Only six Mozarabic congregations, chiefly in Leon and Toledo, were allowed to retain their ancient ritual, but it soon fell into disuse even among these. Abp. Ximenes of Toledo expressly founded a chapel at Toledo, 1500, in which mass was to be said according to the Mozarabian manner, lest it might entirely fall into oblivion. He further caused a number of learned priests, Alfonso Ortiz among them, to collate all the different Mozarabian liturgical MSS. to be found in the different churches, chapels, and convents; and, finally, there was edited, under his auspices, the *Missale Mistum secundum Regulam Beati Isidori Dictum Mozarabicum* (1500–02), which has unfortunately remained incomplete. A whole third of the church-year is left out entirely. The M. L. is said to be now in use only in Toledo and one other church in Spain. The peculiar affinity of this liturgy with the Gallican on the one, and the Greek on the other hand, makes its study extremely important for the history of the ancient church.

MOZART, *mo-zârt′* or *mo′zârt*, Ger. *mo′tsârt*, JOHANN CHRYSOSTOM WOLFGANG GOTTLIEB: one of the greatest of musical composers: 1756, Jan. 27—1791, Dec. 5; b. Salzburg, in w. Austria, where his father, a violinist, was subdirector of the archiepiscopal chapel. His extraordinary musical talents were cultivated to the utmost by his father. At the age of four he played the clavichord, and composed a number of minuets and other pieces still extant. When only six years of age, his performances were so remarkable, that his father took him and his sister, who possessed similar gifts, to Munich and Vienna, where they obtained every kind of encouragement from the Elector of Bavaria and Emperor Francis I. In 1763 and 4 the Mozart family visited Paris and London. At the age of seven, young Mozart surprised a party of musicians, including his father, by taking part, at sight, in a trio for stringed instruments. Symphonies of his own com-

position were produced in a public concert in London; and while there, he composed and published six sonatas, and made acquaintance with the works of Handel, recently deceased. Two years later, when but 12 years of age, he composed the music for the religious service, and for a trumpet concert at the dedication of the Orphan House Church in Vienna, and conducted it in presence of the imperial court. In 1769, at the age of 13, he was appointed director of the concerts of the Prince Abp. of Salzburg; and in the same year travelled with his father to Italy, where he created unequalled enthusiasm by his performances and compositions. In Rome, he went to the Sistine Chapel in Holy Week to hear the *Miserere*, whose music the singers were forbidden to transcribe; and returning to his hotel wrote the music note for note. He composed the opera of *Mithridates* at Milan, 1770, Oct. 3; and it was publicly performed there in Dec. At the age of 16, he was the first claveçinist in the world; he had produced two requiems and a stabat mater, numerous offertories, hymns, and motetts, 4 operas, 2 cantatas, 13 symphonies, 24 pianoforte sonatas, besides a vast number of concertos for different instruments, trios, quartets, marches, and other minor pieces. In 1779, he was appointed composer to the imperial court at Vienna, where he then fixed his residence, and there the musical works were composed on which chiefly his great fame depends. His office in Vienna, however, was rather honorary than lucrative, and he lived by concerts, musical tours, teaching of music, and the small profits from the sale of his published works, till an offer to him of a large salary by the king of Prussia led the emperor to give him 800 florins (abt. $320) a year. Indeed, so small had been the pecuniary returns for all his marvellous work, and so great the necessary expenses of his migratory public life, that he and his father's family were drawing near to penury. His great opera *Idomeneo* was composed 1780, with a view to induce the family of Constance Weber, afterward his wife, to consent to the marriage. It is unpleasant to be compelled to judge from all accounts that the marriage added little to M.'s happiness, and even hindered his prosperity in a pecuniary sense. This opera forms an epoch not only in the composer's life, but also in the history of music. In construction, detail, instrumentation, and every imaginable respect, it was an enormous advance on all previous works of the kind, and established his repute as the greatest musician whom the world had seen. *Die Entführung aus dem Serail* followed. His six quartets, dedicated to Haydn, appeared 1785, and 1786 *Le nozze di Figaro*. In 1787, he produced his *chef-d'œuvre Don Giovanni*, which, though received with enthusiasm at Prague, was at first beyond the comprehension of the Viennese. *Cosi fan tutti* appeared 1790. To 1791, the last year of his short life, we owe *Zauberflöte*, *La Clemenza di Tito*, and the sublime requiem composed in anticipation of death, and finished only a few days

before his decease. The mighty musician died in poverty at the age of 35; and the next day after his death his body was carried to a pauper's grave.

In the intervals of his greater works. M. composed the majority of the orchestral symphonies, quartets and quintets, which are an almost indispensable part of the program of every concert in the present day, besides masses as familiar in England and the United States as in Rom. Cath. Europe, innumerable pianoforte concertos and sonatas, and detached vocal compositions —all perfectly finished. To Haydn M. always acknowledged his obligations; but Haydn's obligations to M. are at least as great. Haydn, though born 24 years earlier, survived M. 18 years, and all his greatest works, written after M.'s death, bear manifold traces of M.'s influence. M.'s habit in composition, was, when he had conceived an idea, to elaborate it mentally until it was complete, and then to commit it to paper. M. is the first composer in whose works all traces of the old tonality disappear; he is the father of the modern school. 'No composer has ever combined genius and learning in such perfect proportions; none has ever been able to dignify the lightest and tritest forms by such profound scholarship, or at the moment when he was drawing most largely on the resources of musical science, to appear so natural, so spontaneous, and so thoroughly at his ease.' See the Lives by Holmes (Lond. 1845) and Jahn (Leip. 1856). The Life by Nohl (2d. ed. 1877) and the Letters have been translated by Lady Wallace.

MOZDOK, *mŏs-dŏk:* town and fortress of s. Russia, govt. of Caucasus, about 142 m. n. of Tiflis. Pop. (1882) 11,000, chiefly Armenians.

MOZLEY, *mōz'lĭ*, JAMES BOWLING, D.D.: 1813, Sep. 15—1878, Jan. 4; b. Lincolnshire, Eng. He graduated with honors from Oriel College, Oxford, 1834; was elected a fellow at Magdalen College 1840, received ordination in the Church of England as a priest 1844, was appointed vicar of Shoreham 1856, and in the same year was married. Through the influence of Mr. Gladstone he was made canon of Worcester 1869, also 1871 regius prof. of divinity at Oxford. He was Bampton lecturer 1865, and from the course of lectures grew his great work on *Miracles.* He was an ardent admirer of Cardinal Newman, but did not follow him to the Church of Rome. He was an able writer, and some of his sermons are said to have been among the greatest of recent times. Among his works were *Essays, Historical and Theological,* 2 vols.; *A Treatise on the Augustinian Doctrine of Predestination; Ruling Ideas in Early Ages; The Primitive Doctrine of Baptismal Regeneration; The Theory of Development in Doctrine;* essays on *The Argument of Design and Principle of Causation,* and *Practical and Parochial Sermons.* He died at Oxford, Eng.

MOZOOMDAR, PROTAP CHUNDER: born about 1840, Calcutta, India. After a course of study in a Hindu college he joined the society of theists in India known as the Brahmo Somaj, and became an earnest co-worker with Keshub Chunder Sen, a prominent theist and leader of the movement to abolish caste. M. visited England 1874, and the United States 1883. He was cordially received in this country as the representative of a great religious movement. His system is Hinduism, modified by Christianity. While believing in God, in the immortality of the soul, and in the efficacy of prayer, he rejects the doctrine of the divinity of Christ—whom, however, he highly magnifies, and holds that no atonement for sin is required. He has written for various periodicals, and is author of *The Oriental Christ.*

MOZYR, *mo-zēr′:* town in the govt. of Minsk, Russia, 150 m. s.s.e. of Minsk. It is a town of considerable antiquity, and took an important part in the wars between the various Russian princes, previous to the Tartar invasion. It was unsuccessfully besieged by the Tartars 1240. Under the Polish rule it was the chief town of a district, and remained so after its annexation to Russia 1795. 150 barges and 200 rafts are annually freighted here with goods to the amount of 500,000 rubles (abt. $280,000). Pop. (1880) 4,200.

MR. n. *mĭs′tĕr:* a contr. of *master*, prefixed to the names of men. MRS. n. *mĭs′trĕs*, contr. for *mistress*, prefixed to the names of married or elderly women: see MASTER.

MRO-HOUNG: see ARACAN (city).

M-ROOF, n. *em-rûf* [named from the shape]: in *carpentry*, a double roof, consisting of two ordinary gable-roofs and a valley between them.

MSKET, *m'skĕt*, or MTSCHET′HA (also other forms): one of the most ancient Georgian towns, in the present govt. of Tiflis, about 10 m. n.n.w. of the town of Tiflis. It is said to have been the seat of the Georgian kings till the 5th c., and contained the first Christian church of Georgia, built during the first half of the 4th c.: in this church the Georgian kings were crowned and buried. The site of M. is now marked by a few huts.

M-TEETH, n. *m-tĕth:* in *saw.*, teeth in groups, of two like the projecting angles of the letter M.

MTZENSK, *m'tsĕnsk:* town of Russia, govt. of Orel, 646 m. s.s.e. of St. Petersburg; on the Zusha, which communicates through the Oka with the Volga. The old cathedral, on a steep rock, gives picturesqueness to the town. M. receives historical mention as far back as 1147. Its trade, chiefly with St. Petersburg and Moscow, amounts in value to more than 1,000,000 rubles ($560,000). Pop. (1880) 14,159.

MUCEDINOUS, a. *mū-sē′dĭ-nŭs* [Gr. *mukēs*, a mushroom, a mold]: in *bot.*, like a mold.

MUCH, a. *mŭch* [Icel. *mjök;* Dan. *megen;* Swiss, *michel*, much, great: comp. L. *magnus*, much: Gael. *moid*, greater]: great in quantity or amount; long in time: AD. in and to a great degree; greatly; nearly: N. a great deal; a great quantity; a heavy service or burden: compar. *more;* superl. *most.* TO MAKE MUCH OF, to treat with regard; to pamper; to fondle. MUCH AS, nearly. AS MUCH, to the same extent. MUCH AT ONE, nearly of equal value; equal influence.

MUCHEL, a. *mŭk'l* [Icel. *mykill*, much: Scot. *muckle*, great]: in *OE.*, much.

MUCH WOOL'TON (i.e., *Great Woolton*): town of Lancashire, England, six m. from Liverpool. The town is thriving, and has long been noted for a stone quarried near. Pop. (1871) 4,643; (1881) 4,539.—Near M. W. is the village of Little Woolton; pop. about 1,000.

MUCIC, a. *mū'sĭk* [F. *mucique*—from L. *mucus*, mucus]: of or from gum. MUCIC ACID, an acid formed by the action of nitric acid on sugar of milk, gum, etc. MUCIDINE, n. *mū'sĭ-dĭn*, one of two albuminoids which occur in crude wheat-gluten.

MUCILAGE, n. *mū'sĭ-lăj* [F. *mucilage;* Sp. *mucilago;* It. *mucilaggine*, mucilage—from mid. L. *mucilāgĭnem*, moldy moisture—from L. *mucus*, the viscous substance within the nose]: a solution of gummy matter of any kind in water. In *chemistry*, M. or *Bassorin* (C_{12} H_{20} O_{10}) is a modification of gum which is insoluble in water, but when moistened with it, swells into a gelatinous mass (see GUM). It is contained abundantly in gum tragacanth; and many seeds, such as linseed, quince seed, etc., and certain roots, such as those of the marsh-mallow, furnish it in large quantity. Alkalies render it soluble in water, and convert it into true gum; and prolonged boiling in water produces the same effect. Nitric acid converts it into mucic and oxalic acids. MUCILAGINOUS, a. *mū'sĭ-lăj'ĭ-nŭs*, pertaining to or resembling mucilage; slimy. MU'CILAG'INOUSNESS, n. *-nĕs*, the state of being mucilaginous.

MUCIN: see under MUCUS.

MUCIPAROUS, a. *mū-sĭp'ă-rŭs* [L. *mucus*, the viscous substance within the nose; *parĭō*, I produce]: secreting or producing mucus.

MUCK, n. *mŭk* [Norw. *mokkok*, a muck-heap—from *moka*, to cast aside with a shovel: Icel. *myki*, dung: Dan. *muge*, to clear away the dung in stables: comp. Gael. *mugh*, to begin to rot]: the cleansings of cattle-stalls; dung in a moist state; filth: V. to manure with dung. MUCK'ING, imp. MUCKED, pp. *mŭkt.* MUCKY, a. *mŭk'ĭ*, dirty; filthy. MUCK-HEAP, a dunghill. MUCK-WORM, a worm bred in muck; a miser.

MUCK, n. *mŭk* [Malay, *amok*, signifying to kill, to engage furiously in battle: see AMUCK, which is properly one word, and an *adverb*]: a sudden wild attack upon every one met with, as among the Malays and Javanese —hence to *run amuck*. RUNNING AMUCK, an indiscriminate murderous attack upon friends and enemies, as the inhabitants of Java and other Asiatic islands often make under the influence of a remarkable frenzy, in which fits they aim at indiscriminate destruction.

MUCKERS, *mŭk'ĕrz:* popular name of an extraordinary sect, which sprang up at Königsberg, Germany, 1835. The movement seems to have originated in the dualistic and Gnostic views of John Henry Schönherr (1771–1826, b. Memel) concerning the origination of the universe by the combination of two spiritual and sensual principles. His followers carried out his system much more completely than himself. The most notable were two clergymen, Ebel and Diestel, the former an arch-deacon. By them, sexual connection seems to have been elevated into an act of worship, and the chief means of the sanctification of the flesh, by which the paradisiac state was to be restored. Ebel and Diestel founded a society, to which women—some of noble birth—attached themselves. Three ladies lived in Ebel's house, who were popularly regarded as his three wives; and Hepworth Dixon, in his work *Spiritual Wives* (1868), tells us that one of them, a young widowed countess, whose beloved husband had fallen on the field of Lützen, and whom Ebel enticed from the seclusion and deep melancholy in which she lived, was described by him as representing to him the principle of Light (*Licht-natur*); another of the ladies represented the principle of Darkness (*Finsterniss-natur*); and the third represented the principle of Union (*Umfassung*). The last was his legal wife, but held the subordinate place in his extraordinary household. Ere long, public feeling was excited against the M., who were said to be guilty, under forms of piety, of the most odious licentiousness in their meetings. The scandal became great in Königsberg, and a garden there acquired the name of the Seraphs' Grove. The subject was brought before the courts (1839–42), and the result was that Ebel and Diestel were degraded from their offices, and the latter was further punished by imprisonment. It is alleged, however, by some who have examined the whole evidence produced, that the decisions did not proceed on a calm judicial inquiry, but were dictated by strong prejudice against the accused, on account of their religious views and eccentricities; and, in particular, that the evidence gives no support whatever to the charge of licentiousness. It is understood that the sentence of imprisonment was quashed on appeal 1842. Hepworth Dixon has directed attention to the similarity of the Mucker movement with that of the Princeites (see AGAPEMONE) in England, and that of the Bible Communists or Perfectionists (q.v.) in America, all of which arose about the same time.

MUCOR, n. *mū'kŏr* [L. *mucor*, a moisture from vines, which is injurious to them]: moldiness; a certain filamentous fungus.

MUCOUS, a. *mū'kŭs* [L. *mucus*, discharge from the nose: It. *muco:* F. *mucus*]: pertaining to mucus; secreting mucus; slimy. **MU'COUSNESS**, n. *-nĕs*, the state of being mucous. **MUCOUS MEMBRANE**, the moist glandular lining of the canals and cavities of the body (see below).

MU'COUS MEM'BRANES: moist glandular linings of the cavities of the body. Under the term **MUCOUS SYSTEM**, anatomists include the skin, mucous membranes, and true glands, all of which are continuous with one another, and are essentially composed of similar parts. For the skin and the glands, see those titles. It remains to speak of the great internal mucous tracts. These are the alimentary mucous membrane, the respiratory mucous membrane, and the genito-urinary mucous membrane.

The *alimentary mucous membrane* commences at the lips, and not only forms the inner coat of the intestinal canal from the mouth to the anus, but gives off prolongations which, after lining the ducts of the various glands (the salivary glands, the liver, and the pancreas) whose products are discharged into this canal, penetrate into the innermost recesses of these glands, and constitute their true secreting element. Besides these larger offsets, there are in the stomach and small intestine an infinite series of minute tubular prolongations, for whose anatomical arrangement and function, see **DIGESTION**.

The *respiratory mucous membrane* begins at the nostrils, and under the name *schneiderian* or *pituitary membrane*, lines the nasal cavities, whence it sends on either side an upward prolongation through the lachrymal duct to form the *conjunctiva* of the eye; backward, through the posterior nares (the communication between the nose and the throat), it sends a prolongation through the Eustachian tube to the middle ear (the cavity of the tympanum), and is continuous with the pharyngeal mucous membrane (which is a portion of the alimentary tract); it then, instead of passing down the œsophagus, enters and forms a lining to the larynx, trachea, and bronchial tubes to their terminations. From the continuity of these two tracts, some writers describe them as a single one, under the name of the gastro-pulmonary tract.

The *genito-urinary mucous membrane* commences at the genito-urinary orifices, lines the excretory passages from the generative and urinary organs, and is the essential constituent of the glands of both: see (e.g.) **KIDNEY**.

We thus see that M. M. line all those passages by which internal parts communicate with the surface, and by which matters are either admitted into or eliminated from the body. As a general rule, they are soft and velvety,

and of more or less red color, from their great vascularity, but they present certain structural peculiarities according to the functions which they are required to discharge. In all principal parts of the mucous tracts the mucous membrane presents an external layer of Epithelium (q.v.) resting on a thin, transparent, homogeneous membrane, which from its position is termed the *basement membrane;* and beneath this a stratum of vascular tissue of variable thickness, which usually presents either outgrowths in the form of papillæ and villi, or depressions or inversions in the form of follicles or glands, or both. The follicles are almost invariably present, but the papillæ and villi are limited to the alimentary or gastro-intestinal mucous membrane. 'The mucous membranes,' says Dr. Carpenter, 'constitute the medium through which nearly all the material changes are effect-

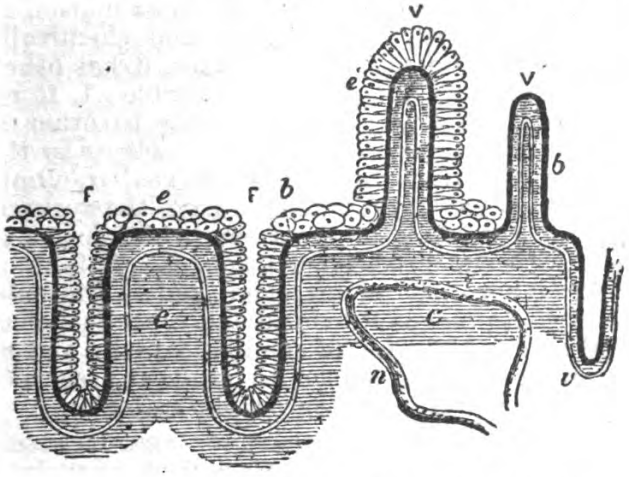


Diagram of the Structure of an Involuted Mucous Membrane:

Showing the continuation of its elements in the follicles and villi:

F, F, two follicles; *b*, basement membrane; *c*, submucous tissue; *e*, *e*, epithelium; *v*, vascular layer; *n*, nerve; V, villus covered with epithelium; V′, villus, whose epithelium has been shed.

ed that take place between the living organism and the external world. Thus, in the gastro-intestinal mucous membrane we find a provision for reducing the food by means of a solvent fluid poured out from its follicles; while the villi, or root-like filaments, which are closely set upon its surface toward its upper part, are adapted specially to absorb the nutrient materials thus reduced to the liquid state. This same membrane, at its lower part, constitutes an outlet through which are cast out not merely the indigestible residuum of the food, but also the excretions from numerous minute glandulæ in the intestinal wall, which result from the decomposition of the tissues, and which must be separated from them to prevent further decay. Again, the bronchio-pulmonary, or respiratory mucous membrane, serves for the in-

troduction of oxygen from the air, and for the exhalation of water and carbonic acid. And, lastly, the mucous membranes are continuous with the cell-lined vesicles or tubes of the various glands, which are the instruments whereby their respective products are eliminated from the blood.' Although the various kinds of epithelial cells discharge a special office in relation to the peculiar function of the mucous membrane upon which each kind occurs, yet they all serve one general purpose—namely, that of protecting the surfaces on which they are placed. This protecting power is increased by the presence of the secretion known as *mucus*, which ordinarily forms an extremely thin layer on these membranes, but when they are irritated or inflamed, is secreted in very considerable quantity. The exact mode of its formation is a disputed question, but it is generally believed to be the product of the gradual solution of the uppermost epithelial cells. Besides acting both mechanically and chemically as a shield to highly sensitive membranes, it has other uses, among which two are especially notable—1. It communicates to the salivary, and probably to other glands, properties not possessed either by itself or by the pure glandular secretions; and 2. It serves to eliminate a considerable quantity of nitrogen from the system. This nitrogen is contained in the *mucin*, which forms 2·4 to 9 per cent. of nasal and bronchial mucus. This mucin contains 12·64 per cent. of nitrogen, and is the substance which gives to mucus its viscid and tenacious character. Normal mucus is devoid of smell and taste, and almost, if not quite, neutral; hence its constant presence in the mouth gives rise to no disagreeable sensation.

MUCRO, n. *mū'krō* [L. *mucro* or *mucrōnem*, a sharp point]: in *bot.*, a straight, stiff, and sharp point. MUCRONATE, a. *mū'krō-nāt*, abruptly pointed by a sharp spinous process. MUCRONULATE, a. *mū-krŏn'ū-lāt*, having a little, hard, sharp point.

MUCUS, n. *mū'kŭs* [L. *mucus*, the discharge from the nose (see MUCOUS)]: the slimy substance secreted from the mucous membrane (see MUCOUS MEMBRANES); in *bot.*, a peculiar matter forming a covering of certain seaweeds. MUCULENT, a. *mū'kū-lĕnt*, mucus-like; slimy. MUCIN, n. *mū'sĭn*, the nitrogenous principle of mucus.

MUD, n. *mŭd* [Low Ger. *mudde;* Bav. *mott;* It. *mota;* Fin. *muta*, mud: Sw. *modd*, snow trodden by cattle into slush: prov. Eng. *mudge*, mud, dirt]: soft slimy earth or debris; the wet filth of roads: V. to bury among mud; to soil with mud; to render muddy. MUD'DING, imp. MUD'DED, pp. MUD'DY, a. *-dĭ*, consisting of mud; containing mud; turbid; dirty; impure; soiled or besmeared with mud; cloudy in mind; dull or stupid: V. to soil with mud; to dirty; to cloud. MUD'DYING, imp. MUD'DIED, pp. *-dĭd:* ADJ. soiled with mud; rendered turbid. MUD'DILY, ad. *-dĭ-lĭ*. MUD'DINESS, n. *-nĕs*, foulness caused by mud or sediment. MUD-CART, a cart for removing rubbish and filth from the streets. MUD-EEL (see SIREN).

Mud-hen (see Coot). **Mud-lark**, one who cleans out common sewers, or who searches for articles lost in such places, or for things lost among mud or slime; a dirty child. **Mud-sill**, the sill or timber of a bridge which is laid at the bottom of a river, lake, etc. **Mud-stone**, a name applied to those shales which return to mud on exposure to the air. **Mud-sucker**, a sea-fowl. **Mud-wall**, a wall built of dried mud.—**Syn.** of 'muddy, a.': foul; gross; dark; dull; stupid; cloudy.

MUDAR, *mū'dâr* (*Calotropis*): genus of shrubs of nat. ord. *Asclepiadaceæ*, distinguished by a coronet of fine blunt processes adhering to the base of the filaments. They are natives of the E. Indies, and the bark of the root, and the inspissated milky juice of some of them, are much used there as an alterative, purgative, emetic, and sudorific medicine. The medicinal properties of M. have been well known in India for many centuries, and have begun to attract the attention of European physicians. It is found of great value in elephantiasis, and in leprosy and other obstinate cutaneous diseases, as well as in some spasmodic affections, and in syphilis.—The species most common in s. India is *C. gigantea;* in n. India, *C. Hamiltonii;* while *C. procera*, said to have an extremely acrid juice, extends into Persia, and even into Syria. M. is very common in India, springing up in uncultivated ground, and often troublesome in that which is cultivated. It is a large shrub, with stems often thicker than a man's leg; and broad fleshy leaves. It grows where almost nothing else will, on very dry sands, and rapidly attains a large size. The silky down of the pods is used for making a soft, cotton-like thread; but is short, and not easily spun. The inner bark also yields a strong and useful fibre, which makes excellent cordage and fishing-lines; but the mode of preparation hitherto used makes it costly.—The inspissated milky juice of M., collected by making incisions in the bark, is used as a substitute for caoutchouc and gutta-percha. It becomes flexible when heated.—The M. of medicine contains a principle called *Mudarine*, on which its medicinal virtues are supposed to depend, and which possesses the rare property of gelatinizing when heated, and becoming fluid when again cooled.

MUDDLE, v. *mŭd'l* [from Eng. *mud;* Low Ger. *musseln*, to daub, to dirty: prov. Dan. *mossel*, confusion: Dan. *muddre*, to stir up mud—*lit.*, to root out with the bill, as geese and ducks do]: to make foul or turbid; to cloud or stupefy with drink; to contract filth; to confuse or disorder: N. in *familiar language*, confused or turbid state. **Muddling**, imp. *mŭd'ling*. **Muddled**, pp. *mŭd'ld:* **Adj.** in a half-intoxicated or stupefied state.

MUDDY: see under **Mud**.

MUD-FISH (*Amia*) : curious genus of fishes, forming the family *Amiidæ* of the order *Ganoidei* of Müller, though its position among the *Ganoidei* is determined only by anatomical characters, in which it agrees with sturgeons and the rest of that order, for the scales are not ganoid, and are not osseous plates, but are flexible and rounded, and destitute of enamel. Similar scales, however, are found in fossil genera regarded by Agassiz as ganoid. In habit, the M. resembles osseous fishes rather than ganoids. Except in the absence of teeth on the tongue, the mouth resembles that of a trout. The body is long and flexible, with a bony vertebral column; there are two nasal cirri; the head is flat, covered with a very thin mucous skin, immediately under which the bones appear as sculptured plates. More than ten species are known, natives of the fresh waters of America. The WESTERN M. (*A. calva*) is 18 in. to 3 ft. long, bluish-black above, white below. It inhabits the great northern lakes of N. America, and is found as far s. as Carolina. It feeds chiefly on cray-fish and other crustaceans. It is not esteemed as food, though sometimes used by the Indians.

MU'DIR: see MOODIR.

MUDKI, *môd'kĭ*, usually spelled MOODKEE: small town of n.w. Hindustan, 28 m. s.e. of the Sutlej, 70 m. s.e. of the city of Lahore, on the Ravi. Here the first battle in the Sikh war of 1845–6 was fought, 1845, Dec. 18, when the British under Sir Hugh Gough repulsed the Sikhs, and Sir Robert Henry Sale, 'Fighting Bob,' was killed. —Pop. of M. about 6,000.

MUËZZIN, n. *mū-ĕz'zĭn* (spelt also MOOUZZIN, MUWAZZIN, MUEDZIN) [Ar. *muazzin*—from *azana*, to listen]: Mohammedan official attached to a mosque, whose duty it is to announce from the minaret of the mosque the different times of prayer. His chant (Adan) consists of these words, repeated at intervals: 'Allah is most great. I testify that there is no God but Allah. I testify that Mohammed is the Apostle of Allah. Come to prayer. Come to security.' ['Prayer is better than sleep' is added in the morning, at the Subh or Fegr. See MOHAMMEDANISM.] 'Allah is most great. There is no deity but Allah!' Besides these regular calls, two more are chanted during the night for those pious persons who wish to perform special nightly devotions. The first (Ula) continues, after the usual Adan, in this manner: 'There is no deity but Allah! He hath no companion—to Him belongeth the dominion—to Him belongeth praise. He giveth life, and causeth death. And He is living, and shall never die. In His hand is blessing, and He is almighty,' etc. The second of these night-calls (Ebed) takes place an hour before daybreak, and begins as follows: 'I extol the perfection of Allah, the Existing for ever and ever: the perfection of Allah, the Desired, the Existing, the Single, the Supreme,' etc. The office of a M. is generally intrusted to blind men only,

lest they might, from their elevation, have too free a view over the surrounding terraces and harems. The harmonious and sonorous voices of the singers, together with the simplicity and solemnity of the melody, make a strikingly poetical impression upon the mind of the hearer in daytime; much more impressive, however, is the sacred chant when resounding from the height of the mosque through the moonlit stillness of an eastern night.

MUFF, n. *mŭf* [Dan. *muffe;* Ger. *muff*, a muff: Dut. *moffel*, a winter glove or sleeve]: a cover usually in the form of a cylinder, generally made of fur, into which the hands may be placed for warmth. *Note.*—MUFF was originally a long hanging sleeve, as worn by women, in which the hands could be wrapped in cold weather—see Skeat.

MUFF, n. *mŭf* [Dut. *maf*, dull, lazy: prov. Eng. *maffling*, a simpleton]: a fool; a stupid fellow.

MUFFETTEE, n. *muf-fĕt-tē′* [dimin. of muff]: small muff worn over the wrist; a wristband of fur or worsted.

MUFFIN, n. *mŭf′in* [from Eng. *muff*, a cover for the hands, so called in allusion to its lightness]: a light, round, spongy cake.

MUFFINEER, n. *mŭf-fĭn-ēr′:* a dish for keeping toasted muffins hot.

MUFFLE, n. *mŭf′l* [Sp. *mufla;* F. *moufle*, a muff, a muffle]: in *assaying*, an arched vessel with a flat bottom, placed in the furnace to receive the cupels.

MUFFLE, v. *mŭf′l* [Ger. *muffel;* OD. *moffel*, other forms of *muff* and *moff*, a fur receptacle for the hands: F. *moufle*, a muffle (see MUFF 1)]: to cover or wrap up closely, as the neck or face; to cover or conceal; to deaden the sound of by winding something round. MUFF′LING, imp. MUFFLED, pp. *mŭf′ld:* ADJ. covered closely, especially the face or neck for warmth; blindfolded; covered with a substance to deaden sound, as oars. MUFFLER, n. *mŭf′lĕr*, a warm covering for the neck and face; a kind of mask; part of a woman's dress by which the face is wholly or partially concealed. A MUFFLED PEAL, bells rung with cloths wrapped round the clappers.

MUFTI, n. *mŭf′tĭ* [Ar. *mufti*, expounder of the law; in Mohammedan countries, magistrate]: the high-priest or chief of the Mohammedan ecclesiastical order; thence a doctor of the law, a magistrate. The Turkish grand M. is the supreme head of the Ulemas (servants of religion and laws), and has, together with the Grand Vizír (Vizír Azim), the supreme guidance of the state, nominally ruled by the sultan. His is the chief spiritual authority, and in this capacity he is denominated also Sheikh-al-Islam (Lord of the Faith). The Imáms (priests), however, chosen from the body of the Ulemas, are, from the moment of their official appointment, under the authority of the Kislar-Aga, or Chief of the Black Eunuchs. The better class of the Ulemas are the teachers and expounders of the law, from among whom the Mollahs and

Cadis are elected. The Turkish laws have their basis in the Koran; the M. thus, as head of the judges, wields a spiritual authority. His is generally the office also of girding the sultan with the sword at his ascension to the throne, a ceremony performed at the Mosque of Eyub, and corresponding to coronation. The M. is elected and may be deposed by the sultan, and his position has in modern days lost much of its former dignity and importance. His Fetwa, or decision, though attached to the imperial decrees, imparts little additional weight. Nor is his own dictum in things spiritual always finally binding. The only prerogative of Muftis and Ulemas which has remained untouched, is their being exempt from bodily or otherwise degrading punishments; though it is the rule, also, that their property can never be confiscated, but descends to their successors.—M., among English military men, is a familiar term for the civilian dress of an officer off duty; undress. IN MUFTI, among *military men*, out of uniform; in disguise.

MUG, n. *mŭg* [Sw. *mugg*, an earthen cup: Ir. *mugan*, a mug: O. Ger. *magele;* Swiss, *mayel*, a cup, a mug]: an earthen or metal vessel for drinking from; a cup.

MUG, n. *mŭg* [It. *mocca*, a mocking or apish mouth: Gael. *smuig*, a snout, a face in ridicule; *muig*, a discontented countenance, a frown]: in *slang*, a face; the countenance; an ugly face.

MUGGLETONIANS, *mŭg-gl-tō′nĭ-anz:* sect in England, founded about 1651, by John Reeve, and Ludovic Muggleton (1607–97), obscure men, who claimed to have the spirit of prophecy. Muggleton was a journeyman tailor. He professed to be the 'mouth' of Reeve, as Aaron was of Moses. They affirmed themselves to be the *two witnesses* of Rev. xi. They asserted a right to curse all who opposed them, and did not hesitate to declare eternal damnation against their adversaries. They favored the world with a number of publications, one of which—directed particularly to the Parliament and Commonwealth of England, and to His Excellency the Lord Protector Cromwell—was entitled *Remonstrance from the Eternal God.* The prophets were at that time imprisoned as nuisances 'in Old Bridewell.' Another publication was a *General Epistle from the Holy Spirit*, dated from 'Great Trinity Lane, at a Chandler's Shop, overagainst one Mr. Millis, a Brown Baker, near Bow Lane End, London.' The first complete ed. of Muggleton's (professedly also Reeve's) works was published 1756; another appeared 1832. The M. denied the doctrine of the Trinity; they held anthropomorphist opinions; and they added many strange doctrines of their own, e.g., that the devil became incarnate in Eve. The M. existed in England as a sect till the second quarter of the 19th c.; but the census of 1851 showed no trace of them, though probably they are not yet quite extinct.

MUGGY, a. *mŭg'gĭ*, or MUG'GISH, a. *-gĭsh* [Icel. *mugga*, darkness caused by rain: Bret. *mouga*, to stifle: W. *mygu*, to smoke: Gael. *muig*, to smother—also cloudy, dark; *mùch*, to suffocate]: warm, damp, close, and suffocating, as the air; murky. MUG'GINESS, n. *-gĭ-nĕs*, the state of being muggy.

MUGIL, n. *mū'jĭl* [L. *mugil*, a sea-fish]: mullet. MUGILIDÆ: see MULLET.

MUGWORT, n. *mŭg'wĕrt* [a corruption of *midge-wort*]: a wild flower, probably so named as being good against midges; the *Artemĭs'ĭă vulgāris*, ord. *Compositæ*, sub-ord. *Corymbif'ĕræ*.

MUGWUMP, n. *mŭg'wŭmp* [said to be an Indian word signifying chief, or leader]: name applied first in reproach to those republicans who in the presidential campaign of 1884 refused to support the republican candidate, but voted for and used their influence to elect the democratic nominee; hence, a dissatisfied, disappointed, displeased person.

MUHALITCH, *mŭh-â-lēch'*, or MUALICH: town of Asia Minor, in Anatolia, 13 m. s. of the Sea of Marmora, 37 m. w. of Brusa, picturesquely situated on low hills. It is large and straggling, contains about 1,500 houses and three or four khans, and is the seat of considerable trade, chiefly in exporting silks, wool, and fruits to Constantinople. Pop. 11,000.

MUHESUR, *mū-hĕs-ĕr'*: town of India, territory of Indore (q.v.), on the right bank of the Nerbudda, 280 m. n.e. of Bombay. The fort contains many houses within its inclosure, but is in bad repair. There is a new palace, of gray basalt, overcharged with sculptures of human beings, and of elephants, tigers, and other animals. There are also numerous and costly Hindu temples, erected by Ahalya Bai, relict of Kunda Rao, son of Maharajah Mulhar Rao. The river, here about 2,000 ft. wide, has a rapid stream of blue water, rushing over a rocky bottom; the banks are 60 or 80 ft. high in the dry season. Access to the water is gained by a ghât, or vast flight of stone stairs, which extends below the water at its lowest level. Pop. abt. 17,000.

MUHLBERG, *mül'bĕrch*: town of Prussian Saxony, on the Elbe, 36 m. s.e. of Wittenberg; (pop. 3,461 in 1880). Here, 1547, Apr. 24, was fought a battle between Johann-Friedrich, Elector of Saxony, and Emperor Charles V. fraught with the most important results to Protestantism in Germany. The battle was soon decided in favor of the emperor; Johann-Friedrich was taken prisoner, and his territories were transferred to Maurice, representative of the ducal family of Saxony. From this time till 1552, the Rom. Catholics were triumphant in Germany.

MUHLENBERG, *mü'lén-bĕrg*, FREDERICK AUGUSTUS CONRAD: 1750, Jan. 1—1801, June 4; b. Trappe, Penn.; second son of Heinrich Melchior M.; was educated at Halle, Germany; ordained to the Lutheran ministry 1770, Oct. 25, after which he served as pastor of various congregations in New York, and New Hanover, Oley, and Goschenhoppen, Penn., till 1779, Aug., when he resigned from the ministry, and entered on a political career, having been elected to congress 1779, May. He served in congress twice, 1779–80, and 1789–97; was twice speaker of the house, and twice of the Penn. state legislature.

MUH'LENBERG, GOTTHILF HEINRICH ERNST, D.D.: 1753, Nov. 17—1815, May 23; b. Trappe, Penn.; son of Heinrich Melchior M. He was educated at Halle, entering the univ. at 10 years of age, and remaining 7 years. After graduation he travelled through Europe, returning to America 1770, and being ordained to the Lutheran ministry, though scarcely 17 years old. After laboring a short time in N. J., he was made assist. pastor of his father's church in Philadelphia 1773; and remained till 1777, when he retired for a time to Trappe because of the British occupying Philadelphia. In 1780 he became pastor of Trinity Lutheran Chh. at Lancaster, and remained till his death there. He was an authority in botany recognized in Europe as well as in America; member of the American Philosophical Soc., and of scientific societies in Germany and in Sweden; and author of several botanical works recognized as standards.

MUH'LENBERG, HEINRICH MELCHIOR, D.D.: 1711, Sep. 6—1787, Oct. 7; b. Eimbeck, Hanover, Germany. He went to school at Eimbeck till 12 years old, when his father died, and he helped support the family. Afterward, while teaching in Zellerfeld, he prepared himself for the Univ. of Göttingen, which he entered 1735, remaining 3 years, becoming imbued with the pietism of Spener and Francke. He went to Halle 1738, to finish his theological studies, and at the same time taught in Francke's orphanage. After being ordained he served, 1739–41, as assist. pastor and inspector of the orphanage at Gross-Hennersdorf, Upper Lusatia. He was preparing to go as missionary to India, when, 1741, he received a call from Penn. to come and labor as missionary there, and as pastor of the German congregations at New Hanover, New Providence or Trappe, and Philadelphia. He left London for this field 1742, June 13, on a packet bound for Ga. with provisions for Oglethorpe's colony; reached Charleston, S. C., 1742, Sep. 22, and Philadelphia Nov. 25. He found the German Lutheran Chh. neglected and demoralized; but with his advent a new era began in American Lutheranism. He not only reorganized and strengthened the three congregations of which he was pastor, but extended his labors and influence far beyond, among the thousands of Germans scattered throughout the middle provinces, organizing churches and securing for them competent pastors from Germany. The first thus to come to his aid were the Rev. Peter Brunnholtz and

two students, of whom the first took M.'s place in Philadelphia, while the latter resided at Trappe for the next 16 years. The same year that these arrived, 1745, M. married a daughter of Conrad Weiser, the Indian interpreter of Tulpehocken. By this marriage he had 11 children. Within the next few years the field of his labors extended from New York and the shores of the upper Hudson to the s. confines of Ga. In this region many new churches were founded, and supplied with pastors, chiefly from Halle. In 1748 the first Lutheran church in Philadelphia was dedicated; and M. and his co-workers succeeded in organizing the first synod on the basis of the Lutheran confessions, at the same time cultivating fraternal relations with the many Swedish Lutherans who had lived along the Delaware since 1638, and with whom M. held frequent intercourse, delivering sermons in Latin and in English. He visited and preached to the Germans and Dutch in New York and N. J., 1751–2, and in 1759–60, serving congregations there during the summer months of those years. In 1762 he reorganized the church in Philadelphia on a new basis, and its constitution thenceforward became the model in organizing new congregations. Similarly, he gave a new form of govt. and constitution, in 1774–5, to the churches in Ga., which had become demoralized and much disturbed by dissensions among their pastors and members. All through the Revolution he endured much opposition and some danger because of his devotion to the American cause. In 1776 he removed to Trappe, where his home was, and resided there for the rest of his life, still maintaining, however, a general superintendence over the churches in America, preaching as occasion required, visiting pastors and congregations as a peacemaker, wise counselor, and esteemed spiritual father; at the same time carrying on an extensive correspondence with his brethren in Germany and in this country. The degree of D.D. was given him 1784 by the Univ. of Pennsylvania, three years before his death at Trappe. While holding rigorously to the symbols of Lutheranism, and insisting on the same in all over whom he held jurisdiction or influence, he yet was tempered and softened by the measure of pietism that he had received from Halle. During the war his house was the asylum of fugitives and the rendezvous of beggars of all kinds; he refused shelter, food, and comfort to none. To rare native abilities he had added large learning; and his unusual executive powers did not detract from his thoroughness as a student.

MUH'LENBERG, JOHN PETER GABRIEL: 1746, Oct. 1—1807, Oct. 1; b. Trappe, Penn; oldest son of Heinrich Melchior M. He was educated at Halle, Germany, but ran away from the university to join the dragoons. After a year's service his discharge was effected, and he returned to America 1766, and studied theology with his father, being ordained to the Lutheran ministry 1772, and serving as pastor in N. J. and in Woodstock, Va. After the outbreak of the Revolution, Washington, with

whom he was acquainted, induced him to accept the office of col. in the continental army. With his commission in his pocket he preached his farewell sermon, full of eloquent patriotism, and at the words, 'There is a time for all things—a time to preach and a time to pray; but there is also a time to fight, and that time has now come!' he threw off his gown, displaying his military uniform beneath, and read his commission. Nearly 300 of his congregation at once enlisted in his regt., the 8th Va., known as the 'German regt.' He was ordered to the relief of Charleston, S. C.; was in the battle of Sullivan's Island; and after the southern campaign was made brig.gen. 1777. After taking brave part in the battles of Brandywine, Germantown, Monmouth, Stony Point, and Yorktown, he was made maj.gen. In 1774 he had been chairman of the committee of safety; 1776 was a delegate to the state convention; after the war was a member of the Penn. council; 1785 was made vice-pres. of Penn.; and presidential elector 1797. He was in congress 1789–95; and again 1799–1801. In 1801 he was elected U. S. senator, but resigned to serve as supervisor of revenue. In 1803 he was made collector of the port of Philadelphia. His statue has been placed in the capitol at Washington.

MUHLENBERG, *mū'lĕn-bĕrg*, WILLIAM AUGUSTUS, S.T.D.: 1796, Sep. 16—1877, Apr. 8; b. Philadelphia; great-grandson of Dr. Henry Melchior M. He graduated from the Univ. of Pennsylvania 1814, and was ordained to the Prot. Episc. ministry 1817, when he became assist. rector of Christ Church, Philadelphia. In 1821 he was ordained priest, and became rector of St. James parish, Lancaster, Penn., remaining there till 1828, when he went to Flushing, L. I., and founded the school which in 1838 was turned into St. Paul's College, with M. as pres. till 1846. In 1846 he became rector of the Church of the Holy Communion, New York, the first free Prot. Episc. church in the country. While here he secured the founding of St. Luke's Hospital, of which he was supt. and pastor from its opening, 1859, to his death. The first Prot. Episc. sisterhood in the country was organized by him 1852, the members of which later took charge of the hospital. Still later he succeeded in establishing, 1866, an industrial Christian settlement at St. Johnland, L. I., not far from New York. He labored earnestly for Christian union, and did much in improving the hymnology of his denomination, being himself the author of such popular hymns as 'I would not live alway,' 'Like Noah's weary dove,' etc. His kindness and benevolence made him beloved by all classes, and a personal favorite wherever he went. He was author of a number of works, the best known of which are *Church Poetry, being Portions of the Psalms in Verse, and Hymns Suited to the Festivals and Fasts, from various Authors* (1823); *Christian Education* (1831); *Music of the Church*, written in conjunction with Bp. Wainwright, and *The People's Psalter* (1847); *Letters on Protestant Sisterhoods*

(1853); *Family Prayers* (1861); *St. Johnland: Ideal and Actual* (1867); *'I Would Not Live Alway,' and the Story of the Hymn* (1871); *Evangelical Catholic Papers, Addresses, etc.*, 2 vols. (1875–77).

MUHLHAUSEN, *mül'how-zén:* ancient city of Prussia, principality of Eichsfeld, on the Unstrut, 30 m. n.w. of Erfurt. It ranked in the middle ages as an important imperial free city, and is still an active centre of commerce. It has manufactories for linen and woolen goods, starch, anise, and saffron works, and carpet and leather factories. M. was deprived of its municipal independence 1803, and made over to Prussia, with which it has since remained incorporated, excepting for a short period during the predominance of French influence in Germany, when, at the suggestion of Napoleon, it was included in the kingdom of Westphalia; but it was restored to Prussia 1813. Pop. (1880) 23,478.

MUHL'HAUSEN: town in Upper Alsace: see MULHAUSEN.

MUHL'HEIM: see MULHEIM.

MUIR, n. *mūr* [AS. *mór*, waste land]: in *Scot.*, a heath; a moor. MUIRBURN, in *Scotch law*, crime of setting fire to heather. Neither owners nor tenants, except in high and wet lands, are entitled to set fire to heather between Apr. 11 and Nov. 1; persons who wilfully fire heather are liable to fine and imprisonment. For the law in England, see ARSON. MUIRLAND, n. *mūr'lănd*, sterile land, or land unfit for cultivation. *Note.*—In Scotch the *u* in *muir* is pronounced as the French *u*, or as *oo* in the Scotch pronunciation of *soot*.

MUIR, *mūr*, JOHN, LL.D., D.C.L., PH.D.: 1810, Feb. 5—1882, Mar. 7; b. Glasgow, Scotland. He was educated at Glasgow Univ., and at the E. India school, Haileybury. 1828–53 he was in the British civil service in India, and had opportunity to pursue his favorite studies of history, antiquities, and the E. Indian languages and dialects, at the same time that he wrote religious tracts in Sanskrit verse. In 1846 he offered a prize of £500 to Cambridge Univ. for the best treatise on the errors of Hindu philosophy, and expounding the principles of Christianity. In 1853 he retired from the service; and 1862 endowed a professorship of Sanskrit and comparative philology at Edinburgh Univ. with £5,000. Christian missionary efforts in India derived much help from him and his labors in furthering the advancement of oriental literature in its bearing on the Christian religion. He contributed largely to the journals of learned societies, and published a learned and useful work in 5 vols. on *Original Sanskrit Texts on the Origin and History of India, their Religion and Institutions.*

MUKDEN, or MOUKDEN, *môk-dĕn'* (Chinese, *Tungtiĕn-foo*, affluent capital): town, cap. of Shing-king or Fing-tien, chief province of Manchuria; lat. 41° 50′ 30″ n., long. 123° 37′ e.; on a branch of the river Liao, about 500 m. n.e. of Peking. The town is surrounded by a wall about 10 m. in circumference, including an inner wall 3 m. in circuit inclosing the emperor's summer residence. Great pains have been taken by the emperors to enlarge and beautify this the metropolis of the Manchu race, but with only partial success. The family residence and place of sepulture of the founders of the reigning dynasty is Hingking, about 60 m. e. of Mukden. The emperor Kienlung got fame among his subjects, and made M. known abroad, by a poetical eulogy on the city and province, printed in 64 different forms of Chinese writing: In 1631, M. became the seat of govt. of the Manchu emperors, and is now the seat of several superior tribunals of a Chinese viceroy of the first rank. Coal and iron are worked in the province. Nineteen leagues from M. is its port, called in Europe Newchwang (correctly Ying-tze (q.v.), opened recently to foreign commerce. Pop. of M., 170,000.

MULATTO, n. *mū-lăt'tō* [Sp. *mulato*, of a mixed breed—from *muleto*, a young mule—from L. *mulus*, a mule: F. *mulâtre*, a mulatto]: the offspring of a white and a black person. *Note.*—The offspring of a *mulatto* and a *black* is a *sambo;* of a *mulatto* and a *white*, a *quadroon;* of a *quadroon* and a *white*, a *mustee;* of a *mustee* and a *white*, a *mustee-fino.* See MIXED RACES.

MULBERRY, n. *mŭl'bĕr-rĭ* [Ger. *maulbeere;* Sw. *mulbaer*, the mulberry—from L. *morus;* Gr. *mŏrŏn*, a mulberry, probably so called from the dark purple of the fruit], (*Morus*): genus of trees of nat. order *Moraceæ*—also their berry and fruit; natives of temperate and of hilly tropical regions in Asia and America; with deciduous leaves, unisexual flowers in short, thick spikes, a 4-parted perianth, containing either four stamens or one pistil with two styles, the perianth of the female flowers becoming succulent and closing over the small pericarp, the whole spike coalescing into an aggregate fruit.—The COMMON M., or BLACK M. (*M. nigra*), is a native of middle parts of Asia, but was introduced into s. Europe more than a thousand years ago, and is now almost naturalized there. It is a low tree, much branched, with thick rough bark, and broad heart-shaped leaves unequally serrated and very rough. The perianth and stigmas are roughly ciliated, and the fruit is of purplish-black color, with dark red juice, fine aromatic flavor, and subacid sweet taste. The fruit is much esteemed for dessert; an excellent preserve and a pleasant light wine are made of it. The tree often produces its fruit in prodigious quantity. The wood is employed in cabinet-work, but is not of much value. The leaves are sometimes used for feeding silk-worms. The Black M. lives long; trees in England are known to be more than 300

years old. It is propagated by seed, by suckers, by layers, or by cuttings. It thrives best in rich light soil. —The WHITE M. (*M. alba*) is a native of China, and has been there planted from time immemorial for its leaves, the best food for silk-worms; on which account also it has been cultivated in s. Europe since about 1540. In N. America it does not thrive further n. than lat. 43°, being somewhat more impatient of frost than the Black Mulberry. The perianth and stigmas are smooth; the fruit is almost white, and is much less palatable than that of the Black M., though in this respect there is great difference among the many varieties. A rob made

Common Mulberry (*Morus nigra*): fruit, leaf, and female flower.

of it is useful in sore throat. The best variety for feeding silk-worms, on account of its rapid growth and abundant leaves, is that called the PHILIPPINE MULBERRY (*M. multicaulis*). In India, the White M. is treated as a bush, and cut down twice a year; the shoots, stripped of their leaves, being thrown away, though the bark has long been used in China and Japan for making paper. It grows readily from cuttings. The root has considerable repute as a vermifuge.—The RED M. (*M. rubra*), native of N. America, abounding particularly on the lower parts of the Missouri, endures severe frosts much better than either of the preceding, and is therefore preferred for cultivation in parts of Europe: its fruit is deep red, and almost as pleasant as the Black M., while the wood is much more valuable; being fine-grained, strong, adapted even for ship-building. The tree attains a height of 60 ft. or more.—The INDIAN M. (*M. Indica*) has black fruit of delicate flavor, and the leaves are extensively used for feeding silk-worms in China, Cochin-China, and Bengal.—*M. atro-ourourea* has been introduced into India

from China for feeding silk-worms. *M. Mauritiana*, native of Madagascar and Mauritius; *M. celtidifolia* and *M. corylifolia*, Peruvian species; *M. Tatarica*, native of central Asia; *M. lævigata*, the species most common in n. India and *M. Cashmeriana*, native of Cashmere, produce pleasant fruit. *M. dulcis*, native of n. India, is said to be superior in flavor to all others.

The PAPER M. (*Broussonetia papyrifera*) differs from the true mulberries in having the female flowers collected in a globular mass. The tree is of moderate size, or, in cultivation, a bush 6–12 ft. high; with leaves either simple or lobed; native of India, Japan, and the islands of the Pacific Ocean, but now common in pleasure-grounds in Europe and N. America. The islanders of the Pacific cultivate the Paper M. with great care. They make a kind of clothing from the bark, using for this purpose the bark of small branches about an inch in diameter, which they macerate in water, and then scraping off the epidermis, press and beat the moist slips together. The paper also, used in Japan and many parts of the East, is largely made from the bark of the young shoots of this plant, which for this purpose is boiled to a pulp, and treated somewhat as the pulp of rags in Europe. When the shoots are cut, new ones spring up very rapidly.—Silk-worms eat the leaves of the paper mulberry.—The fruit is oslong, of a dark-scarlet color, sweetish, but insipid.

MULCH, n. *mŭlch* or *mŭlsh* [Low. Ger. *molsch*, soft through decay: AS. *molsnad*, decayed: Manx, *molk*, to rot]: half-rotten straw: V. to apply half-rotten straw or leaves to protect the roots of trees and shrubs. MULCH'ING, imp. MULCH'INGS, n. plu. applications of such to the soil. MULCHED, pp. *mŭlcht*.

MULCT, n. *mŭlkt* [L. *mulcta* or *multa*, a fine or penalty in cattle, a fine in money]: a fine; a pecuniary penalty: V. to fine; to punish with fine or forfeiture. MULCT'ING, imp. MULCT'ED, pp. MULCTUARY, a. *mŭlk'tū-ĕr-i*, imposing a pecuniary penalty; punishing with fine or forfeiture.

MULDER, *mŭl'dĕr*, GERARD JOHANNES: chemist: 1802 Dec. 27—1880, Apr.; b. Utrecht, Netherlands; son of a physician. After obtaining the degree M.D. at the Univ. of Utrecht 1825, he commenced medical practice at Amsterdam, also teaching botany, and subsequently chemistry, in the medical school; and 1841 was elected prof. of chemistry at the Univ. of Utrecht. He was the discoverer of Proteine (q.v.), which he maintains to be the main ingredient of albumen, fibrine, caseine, etc.; but whose existence as an independent chemical compound is not now generally admitted. He was author of numerous excellent works on physiological and agricultural chemistry, etc. His *Chemistry of Vegetable and Animal Physiology*, and *Chemistry of Wine*, have been translated into English.

MULE, n. *mūl* [L. *mulus*, a mule: It. *mulo*, a mule: F. *mule*, a female mule: supposably connected with Gr. *molos*, labor, and with English *moil*]: offspring of a male ass and a mare (see below); a hybrid; machine used in spinning cotton, so named as being the offspring, so to speak, of the *jenny and water frame* (see SPINNING). MULISH, a. *mūl'ish*, resembling a mule; sullen; obstinate. MUL'ISHLY, ad. *-lĭ*. MUL'ISHNESS, n. *-nĕs*, obstinacy like that of a mule. MULE-LIKE, like a mule. MULETEER, n. *mūl'ĕt-ēr'*, a mule-driver.

MULE: hybrid animal, offspring of the male ass and the mare; much used and valued in many parts of the world as a beast of burden. The ears are long; the head, croup, and tail resemble those of the ass rather than of the horse; but in bulk and stature the M. approaches more nearly to the horse. The M. seems to excel both the ass and the horse in intelligence; it is remarkable for powers of muscular endurance; and its sure-footedness adapts it particularly to mountainous countries. It has been common from very ancient times in many parts of the east; and is much used also in most of the countries around the Mediterranean Sea, and in mountainous parts of S. America. Great care is bestowed on the breeding of mules in Spain and Italy, and those of particular districts are highly esteemed. In ancient times the sons of kings rode on mules, and mules were yoked in chariots. They are still used to draw the carriages of Italian cardinals and other ecclesiastical dignitaries. Both in Spain and in S. America, mules employed to carry burdens are driven in troops, each preceded by an animal—in S. America, usually an old mare—called the *madrina*, or god-mother, to the neck of which a little bell is attached, and the mules follow with the greatest docility. When troops mingle in their halting-places or elsewhere, they are readily separated, as they recognize at once the sound of their own bell.

As in other hybrid animals generally, males are more numerous among mules than females; in the proportion, it is said, of two or three to one. There is no instance on record of offspring produced by two mules; but instances occur, though rarely, of their producing offspring with the horse and with the ass. The M. is far superior in size, strength, and beauty, to the hinny, offspring of the male horse and the female ass.

MULFORD, *mŭl'ford*, ELISHA, LL.D.: 1833, Nov. 19—1885, Dec. 9: clergyman and author: b. Montrose, Penn. He graduated at Yale 1855, studied theology at Andover, Mass.; in New York city; and in Germany, at Halle and Heidelberg; was ordained in the Episc. Church, deacon 1859, and presbyter 1862; served as pastor at Darien, Conn., 1861, and South Orange, N. J., 1861–64; was drawn by his profound tendencies as an original thinker into study and authorship 1864–77, at his early home; and published 1870 a work of great research and masterly reflection, entitled *The Nation, the Foundation of Civil Order*

and Political Life in the United States. The LL.D. degree given him at Yale, 1872, was in recognition of the eminence in political philosophy which this work gave its author. He continued his special studies, but acted as pastor at Friendsville, Penn., 1877–81; and from 1881 filled at Cambridge, Mass., the chair of theology in the Episc. theol. seminary. In 1881 he published *The Republic of God*, containing an ideally broad, spiritual, and undogmatic treatment of Christian doctrine; and he had completed his preparations for other works of importance, when an attack of Bright's disease suddenly cut short his career.

MULGRAVE, *mŭl'grāv*, IS'LANDS: archipelago in the Pacific, comprising the groups Brown, Ralick, Radack, Scarborough, and Kingsmill; lat. 3° s.—12° n., 160°—177° e. They are usually included among the Marshall Islands (q.v.). Sometimes the name is used in a restricted sense for the Radack chain.

MÜLHAUSEN, *mül'how-zén* (Fr. *Mulhouse*): town of Germany, in the imperial territory of Alsace-Lorraine; on a small island between the Ill, and the Rhone and Rhine canal; important station on the Strasburg and Basel railway. It lies in a fertile, well-watered district, and ranks as the most active centre of trade in Upper Alsace; while it is also the seat of a tribunal of commerce, and of various important mercantile and trade unions. Its numerous manufactories produce superior woolen and fine cambric goods, excellent leather, morocco, and carpets; and its printing and dye works for cotton, muslin, wool, and silk fabrics are almost unrivalled for delicacy of colors, and elegance of patterns. M. has extensive bleaching-works, and is noted for its cotton and woolen stocking manufactories, its breweries and distilleries, starch and straw works; and for its ironworks, in which locomotives and various forms of steam-engines are largely manufactured. These manufactures, with corn, wine, and brandy, are the staples of its extensive trade.

M. early acquired commercial importance, having been erected into a free imperial city by Rudolph of Hapsburg, 1273. By siding with some of the Swiss cantons in the 14th c., it was enabled to maintain a degree of neutrality in the feuds between the empire and France. In 1523, M. adopted the Reformed faith. It remained a part of the circle of the Upper Rhine till 1798, when it was incorporated with France. It became a town of the German Empire as a result of the war of 1870–1: see ALSACE. —Pop. (1880) 63,629.

MÜLHEIM-AM-RHEIN, *mül'hīm-âm-rīn:* town in the dist. of Cologne, Prussia, on the right bank of the Rhine, nearly opposite Cologne. It is well-built, has flourishing educational institutions, much industrial prosperity, and brisk trade. It has a rolling-mill, boiler-works, malt manufactories, dye-works, silk-mills, paper-mills and oil-works. Pop. (1880) 20,420

MÜLHEIM-AN-DER-RUHR, *mül'hīm-ân-dĕr-rôr:* town in the dist. of Düsseldorf, Prussia; on the Ruhr, 7 m. from Essen, 16 m. n. of Düsseldorf, at intersection of several railways. Its chief industry is iron-working, with many blast-mills, rolling-mills, and foundries: there are also miscellaneous manufactories. Its trade in Ruhr coal is important, receiving and forwarding about 6,000,000 tons annually. Sandstone quarries are near. River-steamers are built here.—M. has a church of the 12th c., and became a town 1508. Pop. (1880) 22,146, about two-thirds Protestants.

MULIEBRITY, n. *mū'lĭ-ĕb'rĭ-tĭ* [L. *mulĭēbris*, pertaining to a woman—from *mulĭĕr*, a woman]: the state of being a woman; womanhood; effeminacy.

MULL, v. *mŭl* [Scot. *mule* or *moot*, to crumble; *to mule in*, to crumble bread into a vessel for being soaked: Icel. *molva;* Low Ger. *mullen*, to rub down, to reduce to powder: F. *molette*, a stone used by painters and apothecaries for grinding colors; *moulleur*, a grinder]: to reduce the strength of by warming and enriching with sugar, spice, etc., as wine or ale: N. a powder formed by pounding the small roots and husks and bark of large madder; dust or rubbish; in *slang*, a failure; a very thin and soft muslin, used for dresses and trimmings, of which various kinds are made. MULL'ING, imp. *-ĭng*. MULLED, pp. *mŭld:* ADJ. sweetened and enriched with spices. MULL'ER, or MULL'AR, n. *-ĕr*, a hand-stone for grinding down oil-paint on a slab, or for reducing any substance to powder; a vessel for heating wine over a fire. TO MAKE A MULL, to spoil; to make a botch of a thing. *Note.*—MULLED, as applied to sweetened and spiced ale or wine—thus, *mulled-ale*—is also given as from Eng. *mould*, earth; thus in OE. *muld-ale* or *mold-ale* was literally, a funeral ale or banquet. The *mould* was the pulverized earth of the grave: comp. Icel. *mold*, earth, and in plu. *moldar*, a funeral.

MULL, n. *mŭl* [Icel. *muli;* Gael. *maol*, the brow of a mountain]: in *Scot.*, a cape or headland; a snuff-box made of the end of a horn—or may be so named from containing powdered tobacco, and so connected with MULL 1.

MULL, *mŭl:* after the Isle of Skye, the largest of the Inner Hebrides; part of the county of Argyle; bounded w. and s. by the Atlantic, and n.e. by the Sound of Mull. It is triangular in shape, hollowed on the w. side by an inlet of the Atlantic, and deeply indented by sea-lochs, of which the principal are Loch-na-Keal and Loch Scridain. Area about 222,200 statute acres, of which 12,470 are arable. Its surface is mostly occupied by mountains, generally rounded in outline, and rising in Ben More to 3,185 ft. Of its fresh-water lakes, Loch Erisa and Loch Ba are the chief. Wood abounds in the n.; but, owing to the generally tame outline of the mountains, the great stretches of moorland, and the absence of well-defined valleys, the scenery, except on the coast, is uninteresting.

The land under cultivation is chiefly on the shores and at the heads of the lochs. The soil is unusually fertile; but the great humidity of the climate, and the frequency and violence of the gales, render it unfit for agriculture. The land is principally in stock-farms, and great numbers of cattle, sheep, and horses are reared and exported. Chief town, Tobermory (pop. 1,344), in the n.: its harbor is one of the best and safest in the Hebrides. A low-water pier enables steamers to land in any state of the tide. The Sound of Mull, 20 m. long, 2 m. in average breadth, separates the island from the mainland of Argyleshire on the northeast.—Pop. of M. (1881) exclusive of neighboring islets, 5,229.

MULLA, or MULLAH, n. *mŭl'lâ:* see MOLLAH.

MULLANY, *mŭl-lā-nĭ:* JAMES ROBERT MADISON: rear-admiral U. S. navy: 1818, Oct. 26—1887, Sep. 17; b. New York; son of Col. James R. M., quarter-master-gen. U. S. army. He entered the navy 1832, Jan. 7; was promoted passed midshipman 1838, June 23; lieut. 1844, Feb. 29; served in the Mexican war; saw much service at sea; 1861, Jan.—Mar. served on frigate *Sabine* at Fort Pickens, and in Apr. and May in command of gunboat *Wyandotte*, assisting to reinforce Fort Pickens Apr. 12; was commissioned commander 1861, Oct. 16; was with Farragut 1864, Aug. 5, in command of the *Oneida* at battle of Mobile Bay, where he lost an arm. 1863, April —Sep., he commanded a division of the W. Gulf squadron. During the war he captured 11 blockade runners with cargoes of great value; and with boats cut out in Galveston harbor two schooners laden with cotton. 1865, May—1868, May, he was ordnance inspector at Brooklyn navy yard, with rank of capt. 1866; commanded sloop *Richmond* in European squadron 1868, Dec.—1871, Nov.; was made commodore 1870, Aug. 15; had charge of Mediterranean squadron 1870, Oct.—1871, Nov., and of navy yard at Philadelphia 1872–74; became rear admiral 1874, June 5, and commanded N. Atlantic squadron till 1876, Feb.; and 1876–1879 was gov. of the naval asylum, Philadelphia. He was then retired after 47 years' service; and until his death at Bryn Mawr, Penn., resided in Philadelphia.

MULLEIN, n. *mŭl'lĭn* [OF. *mouleine;* F. *molène;* Dan. *mol*, a moth]: wild hedge-plant, whose seed was considered good against moths in clothes, whose leaves are used in infusion for catarrhal affections of the respiratory organs and the bowels, whose flowers are used for poultices, and whose flowers with the peduncle are much used in Germany for a gargle in ulcerated sore throat. The term M. is applied to the genus of plants *Verbas'cum;* and is often applied to the Common M., *Verbas'cum thapsus*, ord. *Scrophulārĭācĕæ* (q.v.).

MUL'LENS, JOSEPH, D.D.: 1820–79, July 10; b. London. He was educated at Coward College and London University, where he graduated 1841. Ordained in 1843, he went as missionary of the London Missionary Soc. (Congl.) to Calcutta. After visiting the missions in India and China, he, 1865, returned to England to become assistant sec. of the London soc., and after Dr. Tidman, the secretary's death, he took his place as foreign sec., having had the degree D.D. conferred on him by Williams College, Mass., 1861. In 1868 the same degree was received also from Edinburgh Univ. The London soc. sent him, 1870, as a delegate to the American Board; and also sent him to visit the mission on Madagascar. In 1875 he directed the organization of a new mission on Lake Tanganyika, in central Africa. Starting to travel into the interior from Zanzibar, he died from disease contracted by exposure and fatigue. He was author of *Twelve Months in Madagascar; A Brief Review of Ten Years' Missionary Labor in India, between* 1852 *and* 1863; and *London and Calcutta Compared in Their Heathenism, Privileges, and Prospects.*

MULLER: see under MULL 1.

MÜLLER, *mü'lér*, FRIEDRICH MAXIMILIAN, LL.D. (known as MAX MÜLLER): one of the most eminent living orientalists: b. 1823, Dec. 6, at Dessau, in the duchy of Anhalt-Dessau; son of Wilhelm M. (1795–1827, classical scholar and distinguished German lyric poet, librarian of the ducal library). M. received the elements of his education at Dessau; and then at Leipzig, under Prof. Hermann Brockhaus, he began the study of Sanskrit. This he soon chose as his special pursuit; and the first results appeared in a translation of the *Hitopadesa* (Leip. 1844). In 1844, he went to Berlin to study under Bopp and Schelling, and consult the Sanskrit MSS. there. In Paris, whither he went 1845, he began, at the instigation of Burnouf, to prepare for an edition of the Rig-Veda, with the commentary of Sâyanâcârya. With this view, he went to England, 1846, June, to examine the MSS. in the E. India House, London, and the Bodleian Library at Oxford; and, on the recommendation of Prof. H. H. Wilson, the E. India Company commissioned him (1847) to edit the Rig-Veda at their expense. The first vol. of this great undertaking, printed at the Oxford University press, appeared 1849; and the sixth and concluding vol. 1874. In 1850, M. was appointed deputy Taylorian prof. of modern languages at Oxford; 1854, he succeeded to the professorship; and 1858, was elected a fellow of All Souls. While pursuing his labors connected with the Rig-Veda, M. has published treatises on a variety of philological topics, which have done more to awaken in England a taste for the science of language in its modern sense (see GRAMMAR) than the labors of any other single scholar. Inheriting the poetic imagination and fire of his father, M. has at command such felicity of illustration, that subjects, dry under ordinary treatment, become in his hands attractive. He has pub-

lished a translation into German of Kâlidâsa's *Megha-dûta* (König. 1847); *An Essay on Bengali* (1847); *An Essay on Indian Logic* (1853); *Proposals for a Uniform Missionary Alphabet* (1854); *The Languages of the Seat of War in the East* (2d ed. Lond. 1855); *Comparative Mythology* (in the Oxford Essays for 1856); *History of Ancient Sanskrit Literature* (2d ed. Lond. 1860); lectures on *The Science of Language* (1861–63); lectures on *The Science of Religion* (1870). *Chips from a German Workshop*, 4 vols., were published 1868–75; the Hibbert lectures on *The Origin and Growth of Religion*, 1878; the Sanskrit originals of the Buddhist texts *Sukhâvatîvyûha* and *Vagrakkhedikâ* 1880–1; *Selected Essays*, 1881; *Biographical Essays*, 1884; *Biographies of Words and the Home of the Aryas;* and *Natural Religion* 1888. He translated the novel *German Love;* is editor of the important series of *The Sacred Books of the East*, and was elected Gifford lecturer on natural theol. at Glasgow Univ. 1889. He is one of the 8 foreign members of the Institute of France, and has received the degree LL.D. from Cambridge and Edinburgh.

MÜLLER, GEORGE: b. 1805, Sep. 27, Kroppenstadt, Prussia. He went to school at Halberstadt, studied the classics with Dr. Nagel, and after 2½ years at the gymnasium at Nordhausen, he entered Halle Univ., at the same time preaching in a Lutheran church. After graduation he went, 1829, Mar., to engage in missionary work in London, under the auspices of the Soc. for Promoting Christianity among the Jews, soon relinquishing his salary, in the belief that God would take care of him without it. He also studied Hebrew and Chaldee at this time. In 1830 he became pastor of a Congl. chapel at Teignmouth; and 1832 at Bristol, still accepting no salary, but only free-will gifts. Here he established free breakfasts for the poor, to whom devotional books were read while eating; these were, however, soon discontinued. In 1833-4 he organized 4 day schools, and the scriptural knowledge institution for helping all kinds of schools, supplying cheap Bibles, and aiding missionary societies. In 1835 he published a project for founding an orphanage for children from 7 to 12 years of age, who were to be kept until able to make their own living. Offers of help being received, the home was opened, 1836, May 18, and by 1837, May, there were two houses, with 64 children, and £1,000 had been received, in aid of the institution, as he declared without solicitation and in answer to prayer. At the end of this year he published the first part of his *Narrative*. A third house, was rented 1838, and 86 orphans cared for; 1842 there were 10 schools and 96 children. In 1845 he began to pray for money to erect a building large enough to harbor all orphans that might be sent him. £10,000 seemed needed for the start, and by 1847, Jan., he had received £9,284 for this purpose, besides current expenses; and by 1850 the house was built, furnished, and filled with 300 orphans. Then he began praying for yet

more money, though his annual receipts at this time, 'as the result of prayer to God,' he says, were over £8,000 annually. Additional donations came in rapidly, and in large sums, £3,000 in 1851; £8,100 in 1853; and in autumn of the same year £5,200. These he laid aside until he should have enough to erect another building. He began building 1856, May, by which time he had £29,297 (nearly $150,000), which by 1860, May, had increased to £45,000; so that by 1862, Mar., he had been enabled to build two more houses, thoroughly furnish them, and support in them 700 orphans, making a total of 1,000 that he was taking care of. His 3 houses being full, he prayed for still more funds; and soon built 2 more houses, which also were speedily filled, so that, in 1875, he writes, '2,000 children were lodged, fed, and educated, without a shilling of endowment, without a committee, without organization, by funds drawn from all parts of the world.' Besides the support of these orphans, he at the same time maintained 189 foreign and home missionaries, 122 schools, and distributed 47,-413 Bibles, or parts of the Bible, and 3,775,971 tracts and books. His orphanages, built at a cost of £115,000 (about $560,000), are vested in a board of trustees. The inmates, after being educated, are put out to service or apprenticed to learn trades. M., besides carrying on this vast enterprise, is also pastor of a church of 900 members. His *Narrative* and other books and pamphlets have an immense sale, and keep the public thoroughly informed of his needs and his work, and may be considered, the chief means through which his prayers are answered, though probably neither so intended nor so considered by him. It is evident that if these were proved the means of the Divine answering of his prayer, that fact, so far from invalidating the claim that God hears prayer, would establish that claim beyond dispute.

MÜLLER, JOHANN: early German mathematician: 1436–76: see REGIOMONTANUS.

MÜLLER, JOHANNES: one of the most eminent physiologists of the 19th c.: 1801 July 14—1858, Apr. 28; b. Coblenz. He began to study for the Rom. Cath. priesthood; but in 1819 he turned to medical study, taking 1822 the degree M.D. at Bonn. While a student, he wrote for a prize the treatise *De Respiratione Fœtus* (Leip. 1823). He became 1824, a tutor; 1826 extraordinary, and 1830 ordinary prof. of physiology and anatomy at Bonn; and 1833, succeeded Rudolphi as prof. of anatomy at Berlin. His physiological researches were most industrious, and were rewarded by many discoveries, which gave him high reputation in the scientific world. His works are numerous, and many of them occupied with particular topics in zoology and comparative anatomy. Among the most important are—*Zur vergleichenden Physiologie des Gesichtssinns des Menschen und der Thiere* (Leip. 1826); *Grundriss der Vorlesungen über die Physiologie* (Bonn, 1827); *Grundriss der Vorlesungen über*

allgemeine Pathologie (Bonn, 1829); *De Glandularum Secernentium Structura Penitiori earumque prima Formatione in Homine atque Animalibus* (Leip. 1830); *Ueber die organischen Nerven der erectilen männlichen Geschlechtsorgane*, etc. (Berlin, 1835); and *Handbuch der Physiologie des Menschen* (2 vols. 4th ed. Coblenz, 1851), 'Manual of the Physiology of Man,' translated into French and English. M. died of apoplexy at Berlin.—His philosophical coordination of principles, and classification of previously unsystematized facts, and his deep thought evolving original and suggestive, yet always cautious, theories, have caused M. to be called 'the founder of modern physiology.' The most eminent living physiologists of Germany received their training in his school.

MÜL'LER, JOHANN GOTTHARD VON: 1747, May 4—1830, Mar. 14; b. at Bernhausen, Wurtemberg, near Stuttgart: German engraver. He was educated for the clerical profession, but also attended the Stuttgart Acad. of Fine Arts; studied engraving in Paris 1770, began work there, and was admitted a member of the French Acad. of Fine Arts 1776; returned to Stuttgart, and took charge there, by commission from Duke Charles of Wurtemberg, of a school of art, whose success was great. The number of his engravings was not large, only about 30, but their influence was important. Among the best known are *St. Catharine* after Leonardo da Vinci, Raphael's *Madonna della Seggiola*, portrait of Louis XVI., and *Battle of Bunker Hill*, from the painting by Trumbull.

MÜL'LER, JOHANN VON: historian of Switzerland: 1752, Jan. 3—1809, May 29; b. Schaffhausen, where his father was clergyman and rector of the gymnasium. He studied at Göttingen under Heyne, Schlözer, Walch, and others. In 1772, he was appointed prof. of Greek at Schaffhausen, and in the same year published his first work, *Bellum Cimbricum* (Zür. 1772). Already he had given his leisure hours to the investigation of Swiss chronicles and documents. He went to Geneva 1774, and became a private tutor, and (1778) delivered a series of lectures on 'Universal History,' afterward published in 24 vols. In 1781, he was called to the Collegium Carolinum at Cassel, as prof. of statistics, and a little earlier published Vol. I. of his great work, *Geschichte der Schweizer*. In 1786, he was appointed librarian and councilor of state to the Elector of Mainz; here he finished Vol. II.; his *Darstellung des Fürstenbundes* (Leip. 1787); and *Briefe zweier Domherren* (Frankfürt 1787). In 1792 he went to Vienna, where Emperor Leopold gave him a situation in the privy council, and 1800 appointed him first imperial librarian. In 1804 he left Vienna for Berlin, where he wrote *Ueber die Geschichte Friedrich's I.*, *Ueber den Untergang der Freiheit der Alten Völker*, *Versuch über die Zeitrechnungen der Vorwelt*, and an additional volume of his Swiss History. Introduced to Napoleon after the battle of Jena, he was appointed by him (1807)—having been previously dismissed from the Prussian service—sec. of

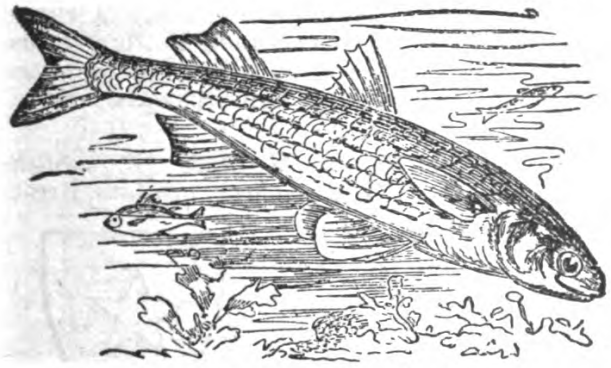
state in the new kingdom of Westphalia. He died at Cassel. M.'s *Sämmtliche Werke* were published, 27 vols. Stuttgart, 1810–19; new edit. 40 vols. 1831–35. M.'s style is not always clear, nor his historic discernment unerring; but his writings have lasting value from his vigorous grasp and vivid characterization.

MÜL'LER, JULIUS: German theologian: 1801, Apr. 10—1878, Oct.; b. Brieg; brother of Karl Otfried M. (q.v.), the antiquary. He studied at Breslau and Göttingen, at first in law, afterward in theology. After long disquietude of soul and much mental struggle, he came under the influence of Tholuck, whom he visited at a friend's suggestion. Not so much Tholuck's theology impressed him as Tholuck's Christian faith, joyful, deep, calm in its spiritual power and earnest in its Christ-like unselfishness. The result was that M. adopted religious views opposed to those of the Rationalists. In 1825, he was appointed pastor at Schönbrunn and Rosen, near Strehlen, where he remained seven years. Having acquired high repute for theological learning, he was appointed 1831 second university preacher in Göttingen, and there lectured on practical theology and pedagogics. The spirit in which he labored may be seen from his sermons, *Das Christliche Leben, seine Kämpfe und seine Vollendung* (The Christian Life, its Struggles and its Perfection; Bresl. 1834; 3d ed. 1847). In 1834, he became extraordinary prof. of theology in Göttingen, and soon afterward ordinary prof. in Marburg, from which he went 1839 to a similar chair in Halle. The work on which chiefly his reputation as a theologian rests is that on Sin, *Die Christliche Lehre von der Sünde* (Bresl. 1839; 4th ed., revised and much altered, 2 vols., 1858), translated into English, Edin. 1856 (*The Christian Doctrine of Sin*). This is considered by theological critics the most acute and profound treatise of modern times on this mysterious subject. It is in close accord with the theology of the confessions. He afterward published pamphlets on subjects of temporary interest, particularly in vindication of evangelical union against the attacks of the rigid Lutherans. In 1850, in conjunction with Neander and Nitzsch, M. edited a periodical, *Deutsche Zeitschrift für Christliche Wissenschaft und Christliches Leben.* He also contributed to the *Theol. Studien und Kritiken.* His work *Die Evangelische Union* appeared 1854.

MÜL'LER, Karl Otfried: genial, richly erudite, and diligent classical archæologist: 1797, Aug. 28—1840, Aug. 1; b. Brieg, Silesia; son of a chaplain in the Prussian army. He received a careful education, studying at Breslau and Berlin. His taste for philological and archæological studies was early developed. The first fruit of his learning was *Aegineticorum Liber* (Berl. 1817), after which he soon received an appointment to the *Magdalenum* in Breslau, where his leisure hours were given to a grand attempt to analyze the whole circle of Greek myths. In 1819, he obtained an archæological chair in Göttingen; and for thorough preparation, visited the collections in Germany, France, and England. His great design was to embrace the whole life of ancient Greece, its art, politics, industry, religion, in one warm and vivid conception—in a word, to cover the skeletons of antiquity with flesh, and to make the dry bones live. With this view, he lectured and wrote with a fine animation, until the political troubles in Hanover made his position uncomfortable. He obtained permission to travel, and made tours in Greece and Italy, but unfortunately died of an intermittent fever at Athens. M.'s literary and scholarly activity stretched over the whole field of Greek antiquity. We are indebted to him for many new and striking elucidations of the geography and topography, literature, grammar, mythology, manners and customs of the ancients. His work on the Dorians (*Die Dorier*, translated into English by Sir George Cornwall Lewis and Henry Tuffnell) forms vols. II. and III. of his *Geschichte Hellen. Stämme und Staaten* (new and improved ed. 3 vols. Bresl. 1844); his treatise *Ueber die Wohnsitze, Abstammung und ältere Geschichte des Macedon. Volks* (Berl. 1825); his *Etrusker* (2 vols. Bresl. 1828); and his maps of Greece, are works of the highest importance in ancient history and ethnology. His *Handbuch der Archäologie der Kunst* (Bresl. 1830, 3d ed. 1846; English by Leitch, London 1850) is full of learning and of acute original observations. His *Prolegomenen zu einer wissenschaftlichen Mythologie* (Gött. 1825) led the way to a strictly historical explanation of the ancient myths. The work by which he is probably best known in England and America is *History of the Literature of Ancient Greece* (Lond. 1840), undertaken at the request of the British 'Soc. for the Diffusion of Useful Knowledge.' M. died before finishing it; what he had finished was translated into English by Sir George Cornwall Lewis and Dr. Donaldson, the latter of whom continued the work from where it was broken off—at the age of Alexander—to the taking of Constantinople. The German original was published by M.'s brother (Bresl. 1841). He showed himself also an acute and judicious critic in his editions of Varro, *Linguâ Latinâ*, Festus, *De Significatione Verborum*, etc. He was brother of Julius M. (q.v.).

MÜL'LER, WILLIAM JAMES: 1812, June 28—1845, Sep. 8; b. Bristol: English landscape and figure painter. He was educated in natural science, but drawn to art by strong natural bent, he got some primary instruction, studied the early landscape painters, and attempted pictures dealing with the scenery of Wales or Gloucestershire. His work was first seen, 1833, in London, in his *Destruction of Old London Bridge—Morning*, after which he visited Germany, Switzerland, and Italy 1843–4, and four years later Athens and Egypt, making sketches. He settled in London, 1839, showed pictures regularly at the Acad., and found purchasers. In France, 1840, he executed a series of architectural sketches, 25 of which were lithographed and published, 1841, as *Picturesque Sketches of the Age of Francis I.* In 1843 he went for art work to Lycia with a govt. expedition, and brought home remarkable sketches, which greatly increased his reputation and enabled him to execute rapidly several of his most important pictures. He had five of these in the Acad. exhibition 1845, when he retired to Bristol under undue sensitiveness as to the fairness with which his pictures were hung, due largely to his ill-health, an affection of the heart shortly ending his promising career. His collected sketches are in the British Museum print room, and his pictures have commanded great prices. The *Chess Players at Cairo*, executed for £25, has sold for £4,000. A biography by N. N. Solly appeared 1875.

MULLET, n. *mŭl'lĕt* [F. *mulet*—from L. *mullus*, the mullet], (*Mugil*): genus of acanthopterous fishes, type of the family *Mugilidæ*. In this family, the body is nearly cylindrical, the scales are large; there are two widely separated dorsal fins, the first of which has only four stiff sharp spines; the teeth are extremely fine; the gullet is

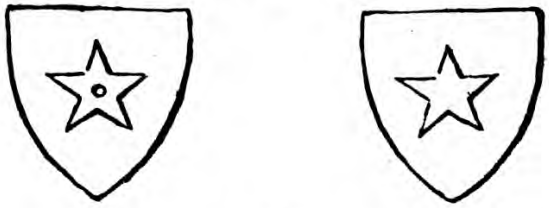


Common, or Gray Mullet (*Mugil capito*).

closed by an extraordinary development of the pharyngeal bones, so that only soft and thin food can pass down it; a branch of the stomach forms a kind of gizzard. The best known of this family belong to the genus *Mugil*, of which there are many species. They have a small mouth, with a fold or crest in the under lip, which fits into a corresponding notch in the upper one. The COMMON M., or GRAY M. (*M. capito*), is found in the

Mediterranean, and along the w. shores of Europe, as far as the s. and s.e. shores of England, but becomes rare further north. The Common M. is usually about 15 inches in length, but sometimes two ft. The color is steel-gray on the back, with bluish and yellowish reflections; the belly silvery white; the flanks with six or eight longitudinal lines of rosy brown. It ascends rivers, often seeking food by thrusting its mouth into the soft mud. It is taken most readily by a bait of the boiled entrails of fish, or cabbage boiled in broth. It is highly esteemed for the table.—A very nearly allied species, also called GRAY M. (*M. cephalus*), a native of the Mediterranean, is distinguished by having the eyes half covered with an adipose membrane, and by a large triangular scale pointing backward, just over the origin of each pectoral fin. It attains a larger size than the former species, sometimes 10 or 12 lbs. weight. It enters the mouths of rivers at certain seasons, and ascends into the fresh water. It is the most esteemed of all the mullets, and was in great request among the ancients: some writers, however, identify with the M. of the ancients a very different fish, the Red M., genus *Mullus* (see SURMULLET.) Enormous prices were given by the Romans for unusually large mullets, the price increasing, like that of diamonds, far more rapidly than the size. Mullets are used fresh, salted, and smoke-dried. A preparation of their roe, called *Botarcha*, is in great esteem as a condiment in Italy and s. France. Mullets are often caught in the Mediterranean by angling from a rock, with a bait of paste, when they have been previously attracted to the spot by macaroni thrown into the water.—A third species of GRAY M. (*M. chelo*), frequent on the coasts of England, is remarkable for its large fleshy lips. It swims in great shoals. In the Mediterranean, it sometimes attains the weight of 8 lbs.—The AMERICAN M. (*M. albula*) is very like the Common M., but more slender, the tail large and forked. It abounds about the Bahama Islands, and extends far northward. It is highly esteemed for the table.

MULLET, n. *mŭl'lĕt*, or MOLLET [F. *mollette*, the rowel of a spur—from O. It. *mollette*, mullets, fire-tongs—



Mullets.

from *mola*, a spurred wheel—from L. *mola*, a mill]: in *her.*, a charge in the form of a star, generally with five points, intended to represent a spur-rowel, and frequent from the beginnings of coat-armor. The word mullet is occasionally used in heraldry for the fish so called.

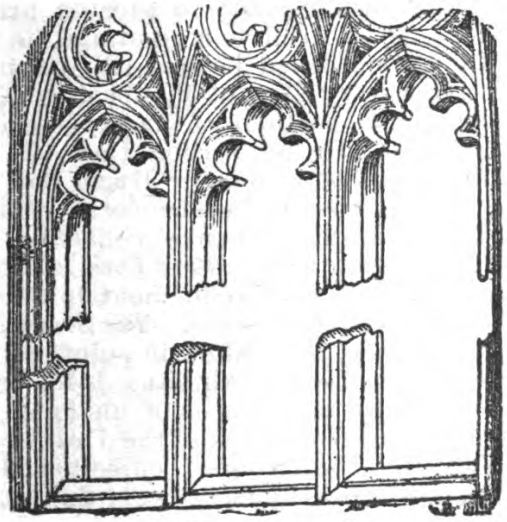
MUL'LIDÆ: see SURMULLET.

MULLIGATAWNY, n. *mŭl'lĭ-gă-taw'nĭ* [E. I. name]: a kind of curry soup or stew.

MULLINGAR, *mŭl-ĭn-gâr':* chief town of the county of Westmeath, Ireland; on the great western road from Dublin to Galway, 50 m. n.n.w. from Dublin, with which it is connected by the Royal canal and the Midland Western railway. It is the site of some of the most important horse and cattle fairs in Ireland. Pop. (1871) 5,103, of whom 4,090 were Rom. Cath., and 886 Prot. of the Episc. Church; (1881) 4,787.

MULLINS, *mŭl'ĭnz*, WILLIAM: 1575–1621: one of the Pilgrim Fathers of the *Mayflower*; a leading member of the separatist congregation under the Rev. John Robinson, at Leyden, Holland, 1609–20. He was a man of considerable estate; prominent in the emigration from Holland to America, with wife, son Joseph, daughter Priscilla, and servant, Robert Carter; was the 10th of 41 signers, in the cabin of the *Mayflower*, of the famous 'compact' for the govt. of the colony; one of four (out of 100) who died Feb. 21, at the height of the sickness which carried off 21 of the 41 signers of the compact, and 23 others, including his wife, son, and servant. The sole survivor of the family, Priscilla, became wife of John Alden and, among her descendants were Pres. John Adams, the poet Longfellow, and other notable Americans.

MULLION, n. *mŭl'yŭn* [It. *mugnone*, a carpenter's trunnion: Sp. *muñon;* F. *moignon*, the stump of an arm or



a *a*

Mullion:
Window from Carlisle Cathedral.

leg after being cut off, the stump of a tree]: one of the upright bars which divide the several lights in a Gothic window frame or screen, being the stump of the division before it breaks off into the tracery of the window.

Mullions are rare in Norman architecture, but become more frequent in the Early English style, and in the Decorated and Perpendicular are very common. They have sometimes small shafts attached to them, which carry the tracery of the upper part of the windows. In late domestic architecture, they are usually plain. The fig. show mullions (*a*, *a*) supporting tracery. MULLION, v. to fit with mullions. MULL'IONING, imp. MULLIONED, pp. *mŭl'yŭnd:* ADJ. having mullions. *Note.*—The short upright bars are called *mullions* or *munnions*, and the cross or horizontal ones *transoms*.

MU'LOCK, DINAH MARIA: see CRAIK.

MULREADY, *mŭl'rĕd-ĭ*, WILLIAM, R.A.: 1786, Apr. 30—1863, July 7; b. Ennis, Ireland. When a boy, he went to London with his parents; at the age of 15, entered as a student in the Royal Acad., and made good progress, aiming at first at the classic style, or what, according to the notions of the day, was called high art. He soon relinquished this course, and applied himself to the study of nature and of artists of repute in a less pretentious walk of art. His first pictures were landscapes of limited dimension and subject. He next essayed figure-subjects in every-day life, such as *A Roadside Inn*, *Horses Baiting*, the *Barber's Shop*, and *Punch* (painted in 1812), *Boys Fishing* (1813), *Idle Boys* (1815). M. was elected an associate of the Royal Acad. 1815, Nov., and an academician 1816, Feb.; though the higher dignity is rarely conferred till after a probation of several years as associate. Even his earliest works were characterized by elaboration; but those of middle period exhibit extraordinary finish and greater brilliancy of coloring. Though he lived to a great age, he continued to work with undiminished powers till within a day of his death. A great number of M.'s best works now belong to the public, as portions of the Vernon and Sheepshanks' collections. In the Vernon, there are four pictures, of which, one, *The Last in, or Truant Boy*, exhibited 1835, is one of the most elaborate works of his middle period; while in the Sheepshanks' collection there are 28 of his works, among which, *First Love*, exhibited 1840, is a remarkable example of refinement in drawing, and delicacy of feeling and expression. *The Sonnet*, exhibited 1839, is perhaps his highest effort in point of style; and *The Butt—Shooting a Cherry*, exhibited 1848, best exemplifies the remarkable minuteness of his finish and richness of his coloring. An edition of the *Vicar of Wakefield*, published 1840, by Van Voorst, embellished with 20 wood-cuts from M.'s drawings, is a very fine work. M.'s style as a whole is admirable, but less for its inspiration, than for its elaborateness and accuracy.

MULSE, n. *mŭls* [L. *mulsus*, mixed with honey—connected with *mel*, honey: comp. Gael. *millse*, sweetness]: wine boiled and mixed with honey.

MULT-, *mŭlt*, or MULTI-, *mŭl'tĭ* [L. *multus*, many]: a prefix in many words which are mostly technical or scientific.

MULTAN, *môl-tân'*, or MOOLTAN: ancient and important city of India, in the Punjab, on a mound consisting of the ruins of ancient cities that occupied the same site, three m. from the left bank of the Chenab—whose inundations sometimes reach M.—and 200 m. s.w. of Lahore. It has railway communication with all principal towns of India—Calcutta, Bombay, Madras, Peshawar, etc. The city is surrounded by a dilapidated wall, 40 to 50 ft. in height. The vicinity abounds in mosques, tombs, shrines, etc., attesting alike the antiquity and magnificence of the former cities; and the country around is remarkable for fertility. M. is a military station, with a small redoubt in the rear of the cantonment. Its bazaars are numerous, extensive, and well stocked; and its shops, 6,000 in number, are well supplied with European and Asiatic commodities. There are manufactures of silks, cottons, shawls, scarfs, brocades, tissues, etc., and an extensive banking trade. The merchants of M. are proverbially deemed very rich. Steamers ply between this city and Hyderabad, 570 m.; and the Indus Valley railway opens a commercial outlet from central Asia, the Punjab, and the N. W. Provinces, to the Arabian Sea by Hyderabad and Karachi. In 1849, M. was taken by the British troops under Gen. Whish, and annexed with its territory to the British possessions. Pop. (1868) 56,826; (1881) 68,674.

MULTANGULAR, a. *mŭl-tăng'gū-lĕr* [L. *multus*, many; *angŭlus*, an angle]: having many angles. MULTAN'GULARLY, ad. *-lĭ*.

MULTARTICULATE, a. *mŭl'târ-tĭk'ū-lāt* [L. *multus*, many; *artic'ŭlus*, a joint]: a term applied to the antennæ of insects, and to the legs of crustaceans, etc., when composed of a great many joints; many-jointed.

MULTICAPSULAR, a. *mŭl'tĭ-kăp'sū-lĕr* [L. *multus*, many; *cap'sŭla*, a chest]: having many capsules.

MULTICARINATE, a. *mŭl'tĭ-kăr-ī'nāt* [L. *multus*, many; *carīna*, a keel]: a term applied to a shell traversed by many keel-like ridges.

MULTICAVOUS, a. *mŭl'tĭ-kā'vŭs* [L. *multus*, many; *cavus*, hollow]: having many cavities.

MULTICIPITAL, a. *mŭl'tĭ-sĭp'ĭ-tăl* [L. *multus*, many; *caput*, the head]: many-headed.

MULTICOSTATE, a. *mŭl'tĭ-kŏs'tāt* [*multus*, many; *costa*, a rib]: in *bot.*, many-ribbed.

MULTICUSPID, a. *mŭl'tĭ-kŭs'pĭd* [L. *multus*, many; *cuspis* or *cuspĭdem*, a spear]: having several tubercles or points; applied to the rough grinding surfaces of the twelve molar teeth. MULTICUSPIDATI, n. plu. *mŭl'tĭ-kŭs-pĭ-dā'tĭ*, the molar teeth, twelve in number, six in each jaw; the 'bicuspids' are the smaller or false molars, and are eight in number.

MULTIDENTATE, a. *mŭl'tĭ-dĕn'tāt* [L. *multus*, many; *dens* or *dentem*, a tooth]: armed with many teeth, or teeth-like processes.

MULTIDIGITATE, a. *mŭl'tĭ-dĭj'ĭ-tāt* [L. *multus*, many; *digĭtus*, a finger]: many-fingered; having many fingers, or finger-like processes.

MULTIFARIOUS, a. *mŭl'tĭ-fā'rĭ-ŭs* [L. *multifārĭŭs*, manifold—from *multus*, many]: having many varieties or great diversity; of many and various kinds. MUL'TIFA'RIOUSLY, ad. *-lĭ*. MUL'TIFA'RIOUSNESS, n. *-nĕs*, multiplied diversity.

MULTIFID, a. *mŭl'tĭ-fĭd*, or MULTIFIDOUS, a. *mŭl-tĭf'ĭ-dŭs* [L. *multĭfĭdus*, cleft or split into many parts—from *multus*, many; *findo*, I cleave or divide]: having many clefts or divisions; in *bot.*, applied to a simple leaf divided laterally to about the middle into numerous portions: when the divisions extend deeper, it is called *multipartite*.

MULTIFLOROUS, a. *mŭl'tĭ-flō'rŭs*, or MUL'TIFLO'RAL, a. *-răl* [L. *multus*, many; *flos*, or *florem*, a flower]: having many flowers.

MULTIFOIL, n. *mŭl'tĭ-foyl* [L. *multus*, many; *fŏlĭum*, a leaf]: in *arch.*, a leaf-ornament consisting of more than five divisions or foils.

MULTIFORM, a. *mŭl'tĭ-fawrm*, or MUL'TIFORM'OUS, a. *-fŏrm'ŭs* [L. *multus*, many; *forma*, shape]: having many forms or shapes. MUL'TIFORM'ITY, n. *-ĭ-tĭ*, diversity of forms or shapes.

MULTIGENEROUS, a. *mŭl'tĭ-jĕn'ĕr-ŭs* [L. *multus*, many; *genĕrĕ*, kinds]: having many kinds.

MULTIJUGATE, a. *mŭl-tĭj'ū-gāt* [L. *multus*, many; *jugum*, a yoke]: in *bot.*, having many pairs of leaflets.

MULTILATERAL, a. *mŭl'tĭ-lăt'ĕr-ăl* [L. *multus*, many; *latĕrĕ*, sides]: having many, or more than four, sides.

MULTILINEAL, a. *mŭl'tĭ-lĭn'ē-ăl*, or MUL'TILIN'EAR, a. *-ē-ĕr* [L. *multus*, many; *linĕă*, a line]: having many lines.

MULTILOCULAR, a. *mŭl'tĭ-lŏk'ū-lĕr* [L. *multus*, many; *loc'ŭlus*, a cell]: having many cells or chambers.

MULTILOQUENT, a. *mŭl-tĭl'ō-kwĕnt* [L. *multus*, many; *loquens* or *loquen'tem*, speaking]: loquacious; containing many words. MULTIL'OQUENCE, n. *-ō-kwĕns*, use of many words; talkativeness.

MULTINOMINAL, a. *mŭl'tĭ-nŏm'ĭ-năl*, or MUL'TINOM'INOUS, a. *-ĭ-nŭs* [L. *multus*, many; *nomĭnă*, names]: having many names or terms. MUL'TINO'MIAL, a. *-nō'mĭ-ăl*, having many names or terms; in *alg.*, applied to quantities consisting of several names or terms.

MULTIPAROUS, a. *mŭl-tĭp'ă-rŭs* [L. *multus*, many; *părĭō*, I produce]: producing many at a birth.

MULTIPARTITE, a. *mŭl-tĭp'ar-tīt* [L. *multus* many; *partītus*, divided]: divided into or having many parts; in *bot.*, deeply divided into several strips or portions.

MULTIPED, n. *mŭl'tĭ-pĕd* [L. *multus*, many; *pedem*, a foot]: an insect that has many feet: ADJ. having many feet.

MULTIPLE, n. *mŭl'tĭ-pl* [F. *multiple*—from L. *mul'tĭplex*—from *multus*, many; *plĭcō*, I fold]: a quantity or number which contains another an exact number of times without a remainder—thus 8 is a multiple of 2, and 9 of 3: ADJ. containing many times; numerous. COMMON MULTIPLE, one that is a multiple of two or more numbers—thus, 12, 24, or 36 is a common multiple of 4, 3, and 2. LEAST COMMON MULTIPLE, the least number that will contain other numbers exactly—thus 12 is the least common multiple of 4, 3, and 2. MULTIPLE FRUITS, in *bot.*, masses or aggregations of fruits, springing from several distinct blossoms, united into one body.

MULTIPLEPOINDING, n. *mŭl'tĭ-pl-pĭnd'ĭng* [OF. *multiplie*, manifold: AS. *pyndan*, to shut up: Ger. *pfänden*, to distrain]: process in Scotch law by which a person possessed of money or effects claimed by different parties, obtains from the court an authoritative arrangement for the equitable division thereof among the different claimants. It means manifold poinding or manifold distress; and the suit corresponds to what in other legal systems is known as a bill or order of interpleader.

MULTIPLEX, a. *mŭl'tĭ-plĕks* [L. *multiplex*, that has many folds—from *multus*, many; *plĭcō*, I fold]: in *bot.*, having many folds; having many of the same parts or organs occurring together.

MULTIPLICA'TION: third and most important of the four principal processes of arithmetic; a compendious mode of addition, when a number is to be added to itself a given number of times. The three terms of a M. are the *multiplicand* or number to be multiplied; the *multiplier*, or number by which it is to be multiplied; and the *product*, or amount obtained when the multiplicand has been added to itself the number of times denoted by the multiplier. The symbol of M. is $+$; and in arithmetic, the numbers are placed above each other as in addition, with a line drawn under them; in algebra, the quantities are merely placed side by side, with or without a dot between them—e.g., the multiplication of 2 by 4 may be written $2 + 4$; and of a by b, $a + b$, $a.b$, or ab. For multiplication of fractions, see FRACTIONS.

The operation of multiplication has been much abbreviated by the use of Logarithms (q.v.), and has been rendered a mere mechanical process, by the invention of Napier's Bones, the Sliding Rule, Gunter's Scale, etc.

MULTIPLY, v. *mŭl'tĭ-plī* [F. *multiplier*—from L. *multiplĭcārĕ*, to make many or numerous—from *multus*, many; *plĭcō*, I fold: It. *multiplicare*]: to increase in number; to make more by addition or natural production; to grow in number; to increase; to perform the process in arithmetic of repeating or adding a number to itself a given number of times. MUL'TIPLYING, imp.: ADJ. increasing. MULTIPLIED, pp. *mŭl'tĭ-plīd*, increased in number; numerous. MUL'TIPLIER, n. *-plī-ér*, one who or that which multiplies; the number which shows how often a number is to be multiplied or increased; in *physics*, an instrument for multiplying or increasing the intensity of a force or action by repetition, as by conducting an electric current several times round a magnetic needle. MUL'TIPLI'ABLE, a. *-plī'ă-bl*, or MUL'TIPLICABLE, a. *-plĭ-kă-bl*, that may be multiplied. MUL'TIPLI'ABLENESS, n. *-bl-nĕs*, capacity of being multiplied. MUL'TIPLICAND', n. *-plĭ-kănd'* [L. *multiplican'dus*, requiring to be knit together many times]: in *arith.*, the number to be, or requiring to be, multiplied. MUL'TIPLICATE, a. *-plĭ-kāt* [L. *multiplicātus*, made many or numerous]: consisting of many. MUL'TIPLICA'TION, a. *-kā'shŭn* [F.—L.]: the act or operation of multiplying or increasing a number; in *arith.*, a short operation or process by which a number or quantity is increased any given number of times (see below). MUL'TIPLICA'TIVE, a. *-kā'tĭv*, tending or able to multiply or increase. MUL'TIPLICA'TOR, n. *-kā'tér*, the number by which another number is multiplied; a multiplier. MUL'TIPLIC'ITY, n. *-plĭs'ĭ-tĭ* [F. *multiplicité*, a multitude]: many of the same kind; the state of being manifold; a great or large number. MULTIPLYING-GLASS, an optical toy by which objects are increased in number to the eye.

MULTIPOLAR, a. *mŭl-tĭp'ō-lér* [L. *multus*, many; *polus*, a pole, a point]: applied to nerve-cells with many tail-like processes or prolongations.

MULTIPOTENT, a. *mŭl-tĭp'ŏ-tĕnt* [L. *multus*, many; *poten'tem*, powerful]: having manifold powers; having power to do many different things.

MULTIPRESENT, a. *mŭl'tĭ-prĕz'ĕnt* [L. *multus*, many; *præsens* or *præsen'tem*, present]: having the power of being present in many places at once. MUL'TIPRES'ENCE, n. *-prĕz'ĕns*, power of being present in more places than one at the same time.

MULTISEPTATE, a. *mŭl'tĭ-sĕp'tāt* [L. *multus*; *septum*, a hedge]: in *bot.*, having numerous septa or partitions.

MULTISILIQUOUS, a. *mŭl'tĭ-sĭl'ĭ-kwŭs* [L. *multus*, many, *silĭqua*, a pod]: many-podded: applied to plants whose fruits contain many seed-vessels.

MULTISONOUS, a. *mŭl-tĭs'ō-nŭs* [L. *multus*, many; *sonus*, sound]: having many sounds, or much sound.

MULTISPIRAL, a. *mŭl'tĭ-spī'răl* [L. *multus*, many; *spira*, a wreath]: applied to a shell having many whorls.

MULTISTRIATE, a. *mŭl'tĭ-strī'āt* [L. *multus*, many; *stria*, a streak]: marked with many streaks.

MULTITUDE, n. *mŭl'tĭ-tūd* [F. *multitude*—from L. *multitūdĭnem*, a great number—from *multus*, many: It. *multitudine*]: a great number; a crowd; a throng; the populace. **MUL'TITU'DINOUS**, a. *-tū'dĭ-nŭs*, consisting of a great number; very numerous; manifold. **MUL'TITU'DINOUSLY**, ad. *-lĭ*.—**SYN.** of 'multitude': assembly; swarm; assemblage; commonalty; mob; mass.

MULTIVALVE, n. *mŭl'tĭ-vălv* [L. *multus*, many; *valvæ*, valves or folding-doors]: mollusk whose shell is composed of more than two distinct valves or pieces. **MUL'TIVAL'VULAR**, a. *-văl'vū-lĕr*, having many valves as covering pieces.—*Multivalve*, as a term in systems of Conchology (q.v.), has been of primary importance; but since the study of the living animals has led to arrangements very different from those founded on their mere shells, a very subordinate place has been assigned to it, as indicating a distinction much less important than formerly supposed. Thus, Chitons (q.v.), which have multivalve shells, are now placed in the same order of gasteropods with Limpets (q.v.), of which the shells are univalve; and *Pholas* (q.v.) and *Teredo* (q.v.), which have two principal valves and some small accessory valves, the latter also a long shelly tube, are placed among lamellibranchiate mollusks, with most of the bivalves of conchologists. In conchological systems, barnacles and acorn-shells were also generally included, and ranked among multivalves; but these are now no longer referred even to the same division of the animal kingdom. See **CIRRIPEDA**.

MULTOCA, n. *mŭl-tō'kă* [Turk. *multeka*]: the Turkish code of law.

MULTOCULAR, a. *mŭl-tŏk'ū-lĕr* [L. *multus*, many; *oculus*, an eye]: having many eyes, or more than two.

MULTUM, n. *mŭl'tŭm* [L. *multum*, much]: a mixture of the extracts of quassia and licorice, used to adulterate beer.

MULTUM IN PARVO, phrase, *mŭl'tŭm ĭn pâr'vō* [L. much in little]: useful or valuable article in a small space.

MULTUNGULA, n. *mŭl-tŭng'gū-lă* [L. *multus*, many; *un'gŭla*, a hoof]: the division of the perissodactyle ungulates, which have more than a single hoof on each foot. **MULTUNGULATE**, a. *mŭl-tŭng'gū-lāt*, having the hoof divided into more than two parts.

MULTURE, n. *mŭl'tūr* [L. *molĭtūrā*, a grinding—from *molo*, I grind]: in *Scot.*, a grinding; in Scotch law, the toll or emolument paid to the miller for grinding; it consists of a quantity of the grain either manufactured or in kind: see **THIRLAGE**.

MUM, a. *mŭm* [an imitative word; the sound made with the lips closed, being the least articulate sound a person can make]: silent; not speaking: **INT.** be silent or secret. **MUM-BUDGET**, int. *-bŭj'ĕt* [F. *bouger*, to move, to budge]: keep silent and concealed; keep secret and silent. **MUM-CHANCE**, *-chăns* [*chance*, hazard]: a game of chance by players who keep silence.

MUM, n. *mŭm* [Ger. *mumme*, a thick strong beer brewed at Brunswick: prov. Dan. *mæm*, mash for beer]: peculiar kind of beer, formerly used in Britain, and still used in Germany, especially in Brunswick, where it may be regarded almost as the national drink. Instead of only malt being used, it is made of malt and wheat, to which some brewers add oats and bean-meal. It is neither so wholesome nor so agreeable as the common ale or beer.

MUMBLE, v. *mŭm'bl* [Low Ger. *mummelen*, to make the sound *mum mum* in eating or speaking: Dut. *mommelen;* Icel. *mumla*, to mutter]: to speak with the lips partly closed; to suppress or utter imperfectly; to mutter; to chew; to eat with the lips close. MUM'BLING, imp. *-blĭng:* ADJ. uttering with a low imperfect articulation; muttering. MUM'BLED, pp. *-bld:* ADJ. uttered with a low imperfect articulation. MUM'BLER, n. *-blĕr*, one who speaks or utters words imperfectly. MUM'BLINGLY, ad. *-lĭ*. MUMBLE-NEWS, in *OE.*, a tale-bearer; one who carries news privately.

MUMM, v. *mŭm* [F. *mommeur;* It. *mommeo*, one that goes a-mumming: It. *mommeare*, to mumm: Dut. *momme;* Ger. *mumme*, a masker, a mask, a bugbear: most probably onomatopoetic in origin]: to sport as a masker in silence and disguise, originally in silence; to mask. MUMM'ING, imp.: ADJ. pertaining to the sports of mummers: N. a masked entertainment. MUMMED, pp. *mŭmd.* MUM'MER, n. *-mĕr*, one who plays at a theatre in disguise; a masker: a buffoon. MUMMERY, n. *mŭm'mĕr-ĭ*, a masquerading; buffoonery; ill-managed acting; hypocritical disguise and parade.

MUMMY, n. *mŭm'mĭ* [F. *mumie*—from Ar. *mumia*, a kind of bitumen—from *mum*, wax: It. *mummia*]: a dead body embalmed after the manner of the anc. Egyptians; a dead body preserved from decay by any means (see EMBALMING); a liquor which distils from mummies; a gum: a sort of wax used in the grafting of trees. TO BEAT TO A MUMMY, to beat soundly. MUMMIFY, v. *mŭm'mĭ-fī* [L. *facĭō*, I make]: to prepare as a mummy by embalming; to make a mummy of. MUM'MIFYING, imp. MUM'MIFIED, pp. *-fīd.* MUM'MIFICA'TION, n. *-kā'shŭn*, the act of making into a mummy. MUMMIFORM, a. *mŭm'mĭ-fawrm* [L. *forma*, shape]: mummy-shaped.

MUMMY-CHOG, n. *mŭm'ĭ-chŏg* [Amer. Indian, *mummachog*]: small fish of the carp kind.

MUM'MY-WHEAT: variety of wheat said to be produced from grains found in an Egyptian mummy. But no good evidence of this origin has been adduced—indeed it is now considered impossible; and the same variety has long been in general cultivation in Egypt and neighboring countries. The spike is compound—a distinguishing character, by which it is readily known, but which is not altogether permanent.

MUMP, v. *mŭmp* [Scot. *mump*, to speak indistinctly, to hint at: Icel. *mumpa*, to eat voraciously: Dut. *mompen*, to mump, to cheat: Swiss, *mumpfeln*, to eat with full mouth]: to bite the lip like a rabbit; to move the lips while closed or almost closed; to make faces as if chewing or nibbling; to nibble; to talk with indistinctness, as if the lips were closed; to make mouths; to beg; to implore with a beggar's look and manner; to whine or sulk; to trick. MUMP'ING, imp.: ADJ. nibbling; begging: N. begging tricks. MUMPED, pp. *mŭmpt*. MUMP'ER, n. *-ĕr*, a beggar. MUMP'ISH, a. *-ĭsh*, sullenly silent; sullen; sour. MUMP'ISHLY, ad. *-lĭ*. MUMP'ISHNESS, n. *-nĕs*, sullen silence; sullenness. IN THE MUMPS, sullenly silent; a fit of sullen temper, so named from the fact that the disease called Mumps (q.v.) gives the patient the appearance of being sulky or sullen, from the difficulty of eating, speaking, or swallowing.

MUMPS, n. plu. *mŭmps* [from MUMP, which see: Low Ger. *mumms*, a swelling of the glands of the neck]: popular name of a specific inflammation and swelling of the salivary glands, particularly the parotid glands; described by nosologists as *Cynanche Parotidæa*, or *Parotitis*. In Scotland, it is frequently termed *The Branks*. The disorder begins usually with a feeling of stiffness about the jaws, followed by pains, heat, and swelling beneath the ear. The swelling begins in the parotid, but the other Salivary Glands (q.v.) usually soon become implicated, so that the swelling extends along the neck toward the chin, thus giving the patient a deformed and grotesque appearance. One or both sides may be affected; in general, the disease appears first on one side and then on the other. There is seldom much fever. The inflammation is usually at its highest point in three or four days, after which it begins to decline, suppuration of the glands scarcely ever occurring. In most cases no treatment further than antiphlogistic regimen, due attention to the bowels, and protection of the parts from cold, by application of flannel or cotton-wool, is required, and the patient completely recovers in eight or ten days. The disease often originates from epidemic or endemic influences, but there can be no doubt that it spreads by contagion; and, like most contagious diseases, it seldom affects the same person twice. It attacks chiefly children and young persons. A singular circumstance is, that in many cases the subsidence of the swelling is immediately followed by swelling and pain in the *testes* in the male sex, and in the *mammæ* in the female. The inflammation in these glands is seldom painful or long continued; but occasionally the inflammation is transferred from these organs to the brain, when a comparatively trifling disorder is converted into a most perilous disease.

MUNCH, v. *mŭnsh* [F. *manger;* It. *mangiare*, to eat—from L. *mandūcārĕ*, to chew, to eat]: to chew by great mouthfuls. MUNCH'ING, imp. MUNCHED, pp. *mŭnsht*. MUNCH'ER, n. *-ĕr*, one who munches.

MÜNCHHAUSEN, *münch'how-zen*, HIERONYMUS KARL FRIEDRICH, Baron VON: 1720–97: b. at his family estate of Bodenwerder, Hanover; of an ancient and noble German family. He served as a cavalry officer in the Russian campaigns against the Turks 1737–39. M. attained celebrity by false and absurdly exaggerated tales of his exploits and adventures, so that his name has become proverbial. A collection of his marvellous stories was published first in England under the title, *Baron Münchhausen's Narrative of his Marvellous Travels and Campaigns in Russia* (only 48 pp. Lond. 1785). The compiler was one Rudolf Erich Raspe, an expatriated countryman of Baron M. This Raspe was a man of some talent and erudition, and of doubtful character. A second ed. appeared at Oxford (1786) under the title, *The Singular Travels, Campaigns, Voyages, and Sporting Adventures of Baron Munnikhousen, commonly pronounced Munchausen; as he relates them over a bottle when surrounded by his friends.* Several other editions rapidly followed. In the same year appeared the first German ed., edited by the poet Bürger, to whom for a time the authorship was mistakenly attributed: the latest ed.—entitled, *Des Freiherrn von Münchhausen wunderbare Reisen und Abenteuer* (1849 and 55)—is enriched by an admirable introduction by Adolf Ellisen, on the origin and sources of the famous book, and on the kind of literary fiction to which it belongs. Ellisen's father knew the splendid old braggart in his latter days, and used to visit him. Nevertheless, though Raspe may have derived many of his narratives from M. himself, he appears to have drawn largely from other sources, especially in making up the mass, three times as large as the original 48 pp., which is comprised in later editions, and is far inferior in quality. Several of the adventures ascribed to the baron are found in older books, particularly in Bebel's *Facetiæ* (Strasb. 1508); others in Castiglione's *Cortegiano* and Bildermann's *Utopia*, which are included in Lange's *Deliciæ Academicæ* (Heilbronn 1765). M.'s stories still retain popularity, especially with the young.

MUNCIE, *mŭn'si*: city, cap. of Delaware co., Ind.; on White river and the Cleveland Columbus Cincinnati and Indianapolis, Fort Wayne Cincinnati and Louisville, and the Lake Erie and Western railroads; 54 m. n.e. of Indianapolis, 65 m. s. of Fort Wayne. It contains co. courthouse (cost $250,000), 12 churches, 4 brick school buildings, 1 national bank (cap. $100,000), 1 state bank (cap. $50,000), 2 private banks, public library, opera-house, 20 wells of natural gas (discovered 1886), 2 electric-light plants, water-works, paid fire department, telegraph and telephone service, numerous manufactories, and 5 daily and weekly periodicals. Pop. (1870) 2,992; (1880) 5,219; (1890) estimated 14,000.

MUNDANE, a. *mŭn'dān* [L. *mundānus*, belonging to the world, from *mundus*, the world; F. *mondain*]: belonging to the world; earthly; terrestrial. MUN'DANELY, ad. *-ē.*

MUN'DANE EGG: in many heathen cosmogonies, the original egg from which the world was represented as evolved. The production of a young animal from what resembles it neither in form nor in properties seems to have been regarded as affording a good figure of the production of a well-ordered world out of chaos. Thus, in the Egyptian, Hindu, and Japanese myths, the Creator is represented as producing an egg, from which the world was produced. The same notion is found, in variously modified forms, in the religions of many ruder heathen nations. Sometimes a bird is represented as depositing the egg on the primordial waters. There are modifications of this notion in the classical and other mythologies, according to which the inhabitants of the world, or some of the gods or the powers of good and evil, are represented as produced from eggs. The egg appears also in some mythological systems as the symbol of reproduction or renovation, as well as of creation. The Mundane Egg belonged to the ancient Phœnician mythologic system, and an egg is said to have been an object of worship.

MÜNDEN, *mün'dĕn* (sometimes MIN'DEN): town of Hanover, dist. of Hildesheim, province of Göttingen, at the confluence of the Fulda and Werra; in one of the most picturesque and fruitful parts of Hanover. It has 3 breweries and manufactories of china, earthenware, sugar, tobacco, and linen, with a noted linen-market. There are alum-works and good coal mines in the immediate neighborhood; and it has an extensive river transport-trade in millstones, corn, and timber. M. possesses several architectural remains, indicative of former prosperity. Pop. (1880) 6,354.

MUNDIC, n. *mŭn'dĭk:* the name in Cornwall for the iron-pyrites, or sulphur-ore, of commerce.

MUNDUNGUS, n. *mŭn-dŭng'gŭs* [may be connected with Sp. *mondongo*, tripes, black-pudding]: in *slang*, ill-flavored tobacco; a thing ill-flavored or stinking.

MUNGER, *mŭng'gĕr*, THEODORE THORNTON, D.D.: born 1830, Mar. 5, Bainbridge, N. Y. In 1851 he graduated from Yale Univ., and 1855 from Yale Theol. Seminary. Ordained as a Congl. minister, he served, 1856–60, as pastor of the village church at Dorchester, Mass.; 1862–70 at Haverhill; and 1870–75 at Lawrence. In the latter year he went to Cal., and after organizing a Congl. church at San José, served it as pastor nearly a year, when he returned to New England, having accepted the call of the Congl. Church at North Adams, Mass., 1876. He served there until 1885, when he accepted a call to the United Congl. Church at New Haven, Conn., where he still is. In 1883 he received the degree D.D. from Illinois College, and was made a fellow of Yale Univ. 1887. His volume *On the Threshold* (1881), being sermons and addresses to young men, and *The Freedom of Faith* (1883), made him known in this country and England as an exceedingly suggestive thinker and a most graceful writer, and a leader of advanced and liberal, though fully evangelical, thought in theology. He published also *Lamps and Paths* (1885), and *The Appeal to Life* (1887).

MUNGO, n. *mŭng'gō:* woolen cloth manufactured from the rags of fine woolen goods or cast-off clothing; *shoddy* is the material from rags of coarser goods.

MUNGO, *mŭng'gō*, SAINT: popular name of St. Kentigern, one of the three great missionaries of the Christian faith in Scotland: abt. 516—abt. 603; b. (according to tradition) at Culross, on the Forth, the site of a monastery then ruled by St. Serf, of whom St. M. or Kentigern became the favorite disciple. It is said, indeed, that he was so generally beloved by the monastic brethren, that his baptismal name of Kentigern or Cyndeyrn, 'chief lord,' was exchanged in common speech for Mungo or Munghu, 'dear friend.' St. Ninian (q.v.) converted the tribes of the s.; St. Columba (q.v.) was the apostle of the w. and n.; St. M. or Kentigern restored or established the religion of the Welsh or British people, who held the country between the Clyde on the n. and the furthest boundaries of Cumberland on the s. (see BRETTS AND SCOTS). He is said to have been son of a British prince, Owen ab Urien Rheged, and of a British princess, Dwynwen or Thenaw, daughter of Llewddyn Lueddog of Dinas Eiddyn, or Edinburgh; but these points have the authority of only doubtful tradition. Leaving Culross, he planted a monastery at a place then called Cathures, now Glasgow, and became bishop of the kingdom of Cumbria (q.v.). The nation seems to have been only partially converted from paganism, and the accession of a new king drove St. Kentigern from the realm. He found refuge among the kindred people of Wales, and there, on the banks of another Clyde, he founded another monastery and a bishopric, which still bears the name of his disciple, St. Asaph. Recalled to Glasgow by a new king, Rydderech or Roderick the Bountiful, St. Kentigern renewed his missionary labors, in which he was cheered by

a visit from St. Columba; and dying, was buried where the Cathedral of Glasgow now stands. His life has been often written. A fragment of a memoir, composed at the desire of Herbert, bp. of Glasgow, between 1147 and 64, has been printed by Cosmo Innes in the *Registrum Episcopatus Glasguensis*. The longer life by Joceline of Furness, written about 1180, was published by Pinkerton in *Vitæ Antiquæ Sanctorum Scotiæ*. It refers to two still older lives. The fame of St. Kentigern is attested by the many churches which still bear his name, in Scotland and in n. England. The church of Crosthwaite, where Southey is buried, is dedicated to him. The miracles which he was believed to have wrought were so deeply rooted in the popular mind, that some of them sprang up again in the 18th c. to grace the legends of the Cameronian martyrs. Others are still commemorated by the armorial ensigns of the city of Glasgow—a hazel-tree whose frozen branches he kindled into a flame, a tame robin which he restored to life, a hand-bell which he brought from Rome, a salmon which rescued from the depths of the Clyde the lost ring of the frail queen of Cadyow. Nor is it St. M. only whose memory survives at Glasgow; the parish church of 'St. Enoch' commemorates his mother, St. Thenaw; and it is not many years since a neighboring spring, which still bears her name, ceased to be an object of occasional pilgrimage.

MUNGOOS, or MONGOOSE, n. *mŭn'gûs:* an animal of the civet kind, useful in India, etc., for destroying snakes and vipers; the ichneumon: see ICHNEUMON (*Herpestes*).

MUNGREL, a. *mŭng'grĕl:* see MONGREL.

MUNI: Sanskrit title, denoting a holy sage; applied to a great number of distinguished personages, supposed to have acquired, by dint of austerities, more or less divine faculties.

MUNICH, *mū'nĭk* (Ger. *München, mün'chĕn*): city, cap. of Bavaria, fourth largest town in the German empire; 48° 8′ n. lat., 11° 35′ e. long.; on the left bank of the Isar, the midst of a barren and elevated plain, about 1,700 ft. above sea-level. Pop. (1875) 193,024; (1880) 230,023, about 90 per cent. Rom. Catholics, 9 per cent. Protestants, 1 per cent. Jews.

M. consists, in addition to the old town, of five suburbs, and of the three contiguous districts, Au, Haidhausen, and Obergiesing. By the efforts of King Ludwig I., who spent nearly 7,000,000 thalers (nearly $5,200,000) on the improvements of the city, M. has been decorated with buildings of almost every style of architecture, and enriched with a larger and more valuable collection of art-treasures than any other city of Germany. It possesses 42 churches, of which all but two or three are Rom. Cath. Of these the most notable are: the cathedral, which is the see for the archbishopric of Munich-Freising, built 1468–94, remarkable for its two square towers, with their octagonal upper stories, capped by cupolas, and its 30 lofty and highly decorated windows; the church

of the Jesuits, or St. Michael's, which contains a monument by Thorwaldsen to Eugene Beauharnais; the Theatiner Kirche, completed 1767, and containing the burying-vaults of the royal family; the beautiful modern Church of St. Mariahilf, with gorgeous painted glass and exquisite wood-carvings; the round church, or Basilica of St. Boniface, with its dome resting on 64 monoliths of gray Tyrolean marble, and resplendent with gold, frescoes, and noble works of art; the cruciform-shaped Ludwigs Kirche, embellished with Cornelius's fresco of the Last Judgment; and the Court Chapel of All Saints, a casket of art-treasures. Among the numerous public buildings, whose description would fill a volume, are: the theatre, largest in Germany, accommodating 2,400 spectators; post-office; Ruhmeshalle; new palace, including the older royal residence, the treasury and chapel, antiquarian collections, etc.; and the Königsbau, designed by Klenze, in imitation of the Pitti Palace, and built at a cost of 1,250,000 thalers (more than $925,000), containing J. Schnorr's frescoes of the Nibelungen; the Banqueting Halls, rich in sculpture by Schwanthaler, and in grand fresco and other paintings. In the still incomplete suburb of Maximilian are the old Pinakothek, or picture-gallery, erected 1836 by Klenze, containing 300,000 engravings, 9,000 drawings, a collection of Etruscan remains, etc.; and immediately opposite, the new Pinakothek, completed 1853, containing the works of recent artists; the Glyptothek, with its 12 galleries of ancient sculpture, and its noble collection of the works of the great modern sculptors, e.g., Canova, Thorwaldsen, Schadow, etc. Among the gates of M., the most beautiful are the Siegesthor ('Gate of Victory'), designed after Constantine's triumphal arch in the Forum, and the Isarthor with its elaborate frescoes. In addition to these and many other buildings intended either solely for adornment of the city, or as depositories for works of art, M. possesses numerous scientific, literary, and benevolent institutions, remarkable alike for the architectural and artistic beauty of their external appearance, and the liberal spirit of their organization and management. Since 1882, the well-known *Allgemeine Zeitung*, formerly of Augsburg, is published at M. The library, enriched by the biblical treasures of numerous suppressed monasteries, contains about 800,000 vols., of which 1,300 are incunabula, with nearly 22,000 MSS. The university, with which that of Landshut was incorporated 1826, comprises 5 faculties, and has a staff of more than 130 professors and teachers, and more than 1,300 students. In association with it are numerous medical and other schools, a library of 200,000 vols., and various museums and cabinets. M. has a well-manned observatory, supplied with first-rate instruments by Fraunhofer and Reichenbach; 3 gymnasia; numerous Latin, normal, military, professional, polytechnic, and elementary schools, of which the majority are Rom. Cath.; institutions for the blind, deaf and dumb, and crippled, and for female orphans, besides numerous

hospitals, asylums, infant schools, etc.; an acad. of sciences; royal academies of painting, sculpture, music, etc.; a botanic garden, parks, public walks, and gardens, adorned with historic, patriotic, and other monuments, and designed for annual and other national fairs and festivals; spacious cemeteries, etc. M. is indebted mainly to Ludwig I. for its celebrity as a seat of the fine arts, as the greater number of the buildings for which it is now famed were erected 1820–50, though, under his successors, Maximilian II., and Ludwig II. (ascended the throne 1864), the embellishment of the city was continued on an equally liberal scale. M. is somewhat behind many smaller towns of Germany in regard to literary movement and freedom of speculation, while its industrial activity also is inferior to its state of high artistic development. Among its industrial establishments, however, are eminently good iron, bronze, and bell foundries; and it is famed for its lithographers and engravers, and its optical, mathematical, and mechanical instrument-makers, among whom Utzschneider, Fraunhofer, and Ertl have acquired world-wide renown. M. is noted for enormous breweries of *Bavarian beer*, and has some good manufactories of cotton, wool, and damask goods, wax-cloth, leather, paper-hangings, carriages, pianos, gold, silver, and steel wares, etc.

The present name of this city cannot be traced further back than the 12th c., when Henry the Lion raised the *Villæ Munichen* from its previous obscurity, by establishing a mint within its precincts, and making it the chief emporium for the salt obtained from Halle and the neighboring districts. In the 13th c., the dukes of the Wittelsbach dynasty selected M. for their residence, built the Ludwigsburg, some parts of whose original structure still remain, and surrounded the town with walls and other fortified defenses. In 1327, the old town was nearly destroyed by fire, and rebuilt by Emperor Ludwig of Bavaria very much on the present plan; but it was not till the close of the 18th c., when the fortifications were razed to the ground, that the limits of the town were enlarged to any extent. The last 60 years indeed comprise the true history of M., since within that period all its finest buildings have been erected, its character as a focus of artistic activity has been developed, its population has been more than doubled, and its material prosperity augmented in proportionate degree.

MUNICIPAL, a. *mū-nĭs′ĭ-păl* [F. *municipal*—from L. *municĭpālis*, of or belonging to a free town—from *municĭp′ĭŭm*, a town or city, other than a Roman city, whose citizens possessed the privileges of Roman citizenship; a free town: It. *municipale*]: pert. to a city, corporation, or state. MUNIC′IPALLY, ad. *-lĭ*. MUNIC′IPAL′ITY, n. *-păl′ĭ-tĭ*, the corporation of a city (see below); a small territorial district; a ward or district.

MUNICIPAL ARCHITECTURE: style of the buildings used for municipal purposes, such as town-halls, guild-halls, etc.; a subject interesting as illustrative of the historic growth of constructive art. Such buildings were used first when the towns of the middle ages rose in importance, and asserted their freedom. Those of n. Italy and Belgium were the first to move; consequently in these countries are the earliest and most important specimens of municipal architecture during the middle ages. It is only in the 'free cities' of that epoch that town-halls are found. We therefore look for them in vain in France or England till the development of industry and knowledge had made the citizens of the large towns so wealthy and important as to enable them to raise the municipal power into an institution. When this became the case in the 15th and 16th c., these countries produced abundant instances of buildings for the use of the guilds and corporations and the municipal courts. Many of these still remain, as do the corporate bodies to which they belong, especially in London, where many of the halls are of great magnificence. Many of these corporation halls have recently been rebuilt by the wealthy bodies to which they belong, such as the Fishmongers, Merchant Taylors, Goldsmiths, and other companies. Municipal buildings on a large scale for the use of the town councils and magistrates have also been recently erected in many large towns in Britain which had quite outgrown their original modest buildings.

Municipal buildings always partake of the architectural style of the period when they are erected; thus, in Italy they are of the Italian-Gothic style in Como, Padua, Vicenza, Venice, Florence, etc., during the 13th, 14th, and 15th c. In Belgium, during the same period, they are of northern Gothic, and are almost the only really fine specimens of the civil architecture of the middle ages that we possess. The Cloth-hall at Ypres, and the town-halls of Brussels, Louvain, Bruges, Oudenarde, etc., the Exchange at Antwerp, and many other markets, lodges, halls, etc., testify to the early importance of the municipal institutions in Belgium.

It is a curious fact, that in France, where the towns became of considerable importance during the middle ages, so few municipal buildings remain. This arises from the fact, that the resources of the early municipalities of France were devoted to aid the bishops in the erection of the great French cathedrals, and the townspeople used these cathedrals as their halls of assembly, and even for such purposes as masques and amusements.

Of the English corporation halls, nearly all those which remain are subsequent to the 14th c., from which time to the present there are very many examples. The Guild-hall of London is one of the earliest: the present building was begun 1411, and was built chiefly by contributions from the trades 'companies' of London. Of the town-halls recently erected, those of Manchester, Liverpool, and Leeds are among the most important.

MUNIC'IPALITY, or MUNIC'IPAL CORPORATION [L. *municeps*—from *munus* and *capio*—one who enjoys the rights of a free citizen]: town or city possessed of certain privileges of local self-government; the governing body in such a town. Municipal institutions originated in the times of the Roman empire. The provincial towns of Italy, which were from the first Roman colonies, as also those which, after having an independent existence, became members of the Roman state, though subjected to the rule of an imperial governor, were allowed a right of regulating their internal affairs. A class of the inhabitants called the *curia*, or *decuriones*, elected two officers, called *duumviri*, whose functions were supposed to be analogous to those of the consuls of the imperial city, and who exercised a limited jurisdiction, civil and criminal. There was an important functionary in every municipality called the *defensor civitatis*, or advocate for the city, the protector of the citizens against arbitrary acts on the part of the imperial governor. In the later ages of the empire, the Decurions were subject to heavy burdens not compensated by the honor of the position, which led many to shun the office. The municipal system declined with the decline of the empire, yet it retained vitality enough to be resuscitated in union with feudalism, and with the Saxon institutions of Britain. Some cities of Italy, France, and Germany have indeed derived their present magistracy by direct succession from the days of imperial Rome, as is notably the case with Cologne. The bishop being a shield between the conquerors and the conquered, in many cases discharged the duties or obtained the functions of the *defensor civitatis*. North of the Alps, under the feudal system, he became officially the civil governor of the city, as the count was of the rural district. In s. Europe, where feudalism was less vigorous, the municipalities retained a large share of freedom and self-government.

Of the cities of the middle ages, some were entirely free; they had, like the provincial towns of Italy before the extension of the Roman conquests, a constitution independent of any other powers. Venice, Genoa, Florence, Hamburg, and Lübeck, all stood in this position. Next in dignity were the free imperial cities in Germany, which, not being comprehended in the dominions of any of the princes, were in immediate dependence on the empire. Most of these cities rose into importance in the 13th c.; and their liberties and privileges were fostered by the Franconian emperors, to afford some counterpoise to the growing power of the immediate nobility. Nürnberg was especially celebrated for its stout resistance to the House of Brandenburg, and the successful war which it waged with the Franconian nobility. In England, the more important cities were immediate vassals of the crown; the smaller municipalities sometimes owned a subject superior, sometimes a greater municipality for their overlord.

Under the Anglo-Saxons, the English burghs were

subject to the rule of an elective officer, the 'Portreve,' who exercised in burgh functions similar to those of the shire-reve in the shire. The Norman conquerors recognized the already existing privileges of the towns by granting them charters. Instead of a shire-reve, a viscount was placed by the king over each shire, and a bailiff instead of the former elective officer over each burgh. In the larger towns, the bailiff was allowed to assume the Norman appellation Mayor. The municipal franchise seems to have been vested in all the resident and trading inhabitants, who shared in the payment of the local taxes and performance of local duties. Titles to freedom were recognized also on the grounds of birth, apprenticeship, marriage, and sometimes free gift.

In all the larger towns the trading population came to be divided into guilds or trading companies, through membership of which companies admission was obtained to the franchise. Eventually the whole community was enrolled in one or other of the guilds, each of which had its property, its by-laws, and its common hall; and the community elected the chief officers. It was on the wealthier and more influential inhabitants that municipal offices were generally conferred; and the practice gradually gained ground of these functionaries perpetuating their authority without appealing to the popular suffrage. Contentions and disputes arose regarding the right of election, and eventually the crown threw the weight of its influence into the scale of self-elective ruling bodies. As the greater municipalities grew in strength, we find their right recognized to appear in parliament by means of representatives. The sheriffs were considered to have discretionary power to determine which towns should, and which should not have this privilege of representation. The sovereigns of the House of Tudor and Stuart acquired the habit of extending the right of parliamentary representation to burghs not in the enjoyment of it, while by granting or renewing to them municipal charters, they modelled the constitution of these burghs to a self-elective type, and restricted the right of voting in the choice of a representative to the governing body. During the reign of William III., Anne, and the earlier Georges, the influence of the crown was largely employed in calling new municipal corporations into existence, with the view of creating additional parliamentary support for the ministry in power. The burghs of Scotland had a history much like that of the burghs of England; their earlier charters were mere recognitions of already existing rights, and were granted to the inhabitants at large. In the 14th and 15th c. the municipal suffrage fell gradually more and more into the hands of restricted bodies of men, until act 1469, c. 5, gave to the councils the right of appointing their successors, the old and new council together electing the office-bearers of the corporation. This state of things continued till 1833, not without much complaint. In the Scottish burghs the several trades possessed a much more exclusive

monopoly than in England. With the outcry for parliamentary reform arose an outcry for municipal reform; and a separate municipal reform act putting an end to the close system was passed for each part of the empire. The English act (5 and 6 Will. IV. c. 76), entitled 'An act to provide for the regulation of municipal corporations in England,' conferred the franchise on the owners and occupiers of property within burgh, with certain qualifications as to property, residence, etc. This constituency elected the councilors, and from the body of the councilors the mayor and aldermen were chosen. Act 32 and 33 Vict. c. 55, limited the requisite period of residence to one year's occupation, and the ballot was introduced by 35 and 36 Vict. c. 33, in municipal as in parliamentary elections. Act 3 and 4 Will. IV. made an entire change in the mode of electing councils in Scottish burghs which already had a council, and conferred councils on burghs which had none. A vote was given to every one who had resided six months in the burgh, or within seven miles of it, and possessed the requisite qualification to exercise the parliamentary franchise: a property qualification similar to that which conferred the parliamentary franchise being required in burghs that did not send or contribute to send a member to parliament. The Municipal Elections Amendment Act (Scotland) 1868, has placed the municipal franchise in the hands of all registered voters to return a member of parliament, and in the case of burghs not represented in parliament, in the hands of all persons possessing similar property qualifications: and act 33 and 34 Vict. c. 92, has provided for the establishment of a municipal register in burghs not represented in parliament. An exemption, under 3 and 4 Will. IV. c. 76, of nine small burghs from the operation of the new system has been done away with. Town-councilors must be electors residing in or carrying on business in the burgh. They remain in office three years, and elect from their own number the provost and bailies. The English act of Will. IV. abolished the exclusive privileges of the guilds, but these monopolies continued in Scotland till 1839, when they were swept away. The Irish municipal system, which had been imported ready-made from England, was assimilated to the altered English system by 3 and 4 Vict. c. 108.

City, town, and village corporations, in the United States, exist to carry out the principle of local or home rule which the states, for much larger areas, represent, in distinction from, and subordination to, the national. Local concerns are subjected to the municipal govt.; but it rests with the state to determine what matters come properly under the town government, and to fix the general principles under which that charge must be executed. There is no absolute authority of the town or city, which it can maintain regardless of the authority of the state. The city is created by, holds of, and is subject to, the state, in everything not violating

the fundamental constitution of the state. The state gives cities their charters, their special privileges, and it may take these away on occasion, grounding its action in the principles of the state or its constitution and general purpose. The contention that a city may by municipal action create a situation in the nature of vested rights, beyond the authority of the state to disturb—a special investment, e.g., in property appropriated to public use—is a contention not admitted by sound authority in municipal law. The more judicious construction of the city's relation to the state is, that it is the trustee and instrument of the state, subject, however, to the city's absolute right to expect of the state the recognition of principles, such as the inviolability of contracts, which are invariably and absolutely obligatory on the state itself. The power of the state to direct a special demand for taxes to a particular locality, though superficially questionable, and perhaps expressly denied in the constitution of a state, is in the absence of such prohibition a power that can be exercised within the limits of generally admissible taxation. The creation of any corporation, city, town, or village, may be by special statute in each case, as has been common, or by local proceedings under a general law, as is now the case in many states; and in either case the charter defines limits, specifies purposes and powers, indicates or implies the methods and manner of corporate action, and provides that the consent of the voters shall be given to the organization.

A general fact in the history of cities, and kindred local corporations, in the states of the Union, has been the disposition of municipal organizations to grant valuable franchises, or actual advances of money, in aid of interests supposed to be of great public importance, such as the building of railroads, and to do this by incurring heavy municipal indebtedness. In some instances state laws have provided a general sanction for such municipal operations, and in others each operation of the kind has secured the authorization of a special legislative act. The question whether cities have by corporate principles a right to proceed in such matters under their general powers, turns on the inquiry how clearly and distinctly the interest which the city proposes to aid is the public interest. It does not fall within any usual grant of corporate powers that there should be authority to vote money in aid of railroads, or for public entertainments and festivities not of and for public business. Yet the admitted principle is that roads of every kind are a public interest, and may receive municipal support by money raised for the public purposes; while yet it would not be permitted to so use public money in aid of any private enterprises, no matter how much value these may have to a community. Experience, however, has created strong distrust of schemes in aid of railroads, and this distrust has shown itself in constitutional or statute prohibition of action by cities in this direction. In other

particulars current opinion, expressed in various ways, tends to restraint of the power of cities to proceed freely in the use of the public money under any but very plain dictates of public necessity and good business judgment.

Legislatures may confer specific powers upon municipal corporations, by either special or general laws. Experience of special laws, each dealing with an individual case, has suggested the wisdom and justice of granting privileges as much as possible under general laws, as more equal and less open to abuse. This fruit of experience is adopted in state constitutions, and it especially serves to enable the integrity and sobriety of a state to restrain the rashness or corruption of large centres of population. In the same direction are the metropolitan extensions of cities to cover a larger field, and the use of a state constabulary where otherwise the city alone would make police arrangements.

The extent to which important proposals of public action are brought directly under the consideration of all the citizens, or are acted on only by representatives elected for the purpose, commonly follows the line of distinction between towns and cities, or small places and large ones, the former acting by town meeting and the latter by councils, mayor, or other elected representatives. In the latter case the by-laws of the corporation become ordinances of great importance, administered by appropriate municipal courts. The enforcement of such ordinances beyond a pecuniary fine, requires express legislative authority. Questions of the contracts which may be made, bonds which may be issued and sold, the power of the corporation to control the streets, make assessments and lay taxes, take property on nonpayment, and other acts incidental to corporate care of the common interest, are subjects forming an elaborate system of municipal law, calling for the service of a corporation counsel.

The American system of law rests on either express or tacit recognition of the continuing validity of considerable parts of the English law, whether common or statute, by which the early settlers found it convenient to govern themselves. The states are the units of this common law of America, and in the single case of Louisiana the basis is the civil law of Spain with some modifications. Different states may reach, through their supreme courts, conclusions, in view of any particular class of facts, opposed to each other, but these for each state are final, unless the matter in question falls under the interpretation of the U. S. constitution and laws. General customs and particular customs both are recognized in the municipal administration of common law. And beyond this, the law inserted in state constitutions or enacted by statutes of legislatures, is of the first importance. If inserted in the constitution, even the legislature cannot set it aside, and it overrules any conflicting custom of the common law, as also a properly passed statute does. The tendency of growth in the

U. S. is to one order and law for all municipalities, distinctly representing state control, the states in the same manner accepting one order and law representing U. S. control, while yet every part of the complex system rests on the free and intelligent consent of the people, whether as nation, state, or city, town, village.

'The village or township,' it has been said by an acute foreign observer, 'is the only association which is so perfectly natural that, wherever a number of men are collected, it seems to constitute itself.' But, it becomes, as in the United States, the basis and primary school of free government only when it has been developed in all its powers by free, intelligent people. New England has been the scene of its freest development. There its origin had much to do with an ecclesiastical system (Congl.) of local independence, and of self-government by the assembled church-members. In old England, municipal privilege belongs only to chartered corporations; and, in this country, there are city corporations, the community and its interests being too large for the township system—excepting many western villages which aspire to the name and organization of cities. The New England township system is marked by the absence of a representative assembly, such as a council or board of aldermen; it does not invest any one man, like a mayor, with superior authority; the whole body of voters meet together to discuss every question of township interest, to elect all township officers, to vote specific appropriations, and to prescribe measures in detail. The selectmen are the chief executive officers chosen, but the administration is wisely diffused by the appointment of many other officers, such as assessors, collectors, treasurer, town-clerk, constables, school committee, overseers of the poor, surveyors of highways, fire-wardens, fence-viewers, pound-masters, weighers and measurers, etc. The people thus hold in their own hands all that pertains to their local interests, and, moreover, this self-government is an education on a small scale for the larger citizenship in state and nation. 'In France, the national government lends its agents to the *commune;* in America it is the reverse. In France, the state collector receives the local imposts; in America, the town [or county] collector receives the taxes of the state.'—*De Tocqueville.* The town delegates to the county the affairs which need the co-operation of a number of towns, and other matters to the state,—the county being little more than a judiciary convenience in New England, but in the middle, western, and southern states, invested, as is the state, with more functions. The township system exists essentially, however, in all the states. It is decentralizing, democratic, and happy in its workings. 'The native of New England,' says De Tocqueville, 'is attached to his township, because it is independent and free: his co-operation in its affairs insures his attachment to its interests; the well-being it affords him secures his affection; and its welfare is the

aim of his ambition and of his future exertions. He takes part in every occurrence in the place; he practices the art of government in the small sphere within his reach; he accustoms himself to those forms without which liberty can only advance by revolutions; he imbibes their spirit; he acquires a taste for order, comprehends the balance of powers, and collects clear practical notions on the nature of his duties and the extent of his rights.'

MUNIFICENT, a. *mū-nĭf'ĭ-sĕnt* [F. *munificent*—from L. *munificens* or *munificen'tem*, presenting with anything—from L. *munus*, a gift; *facĭō*, I make: It. *munificente*]: marked by great liberality in giving; very liberal; generous. MUNIF'ICENTLY, ad. *-lĭ*. MUNIFICENCE, n. *mū-nĭf'ĭ-sĕns* [F.—L.]: a high degree of generosity or liberality.—SYN. of 'munificence': beneficence; benevolence; liberality; generosity; bounty; bounteousness; bountifulness.

MUNIMENT, n. *mū'nĭ-mĕnt* [L. *munĭmentum*, anything constructed for defense, a protection—from *munĭō*, I fortify: F. *muniment*]: that which protects or defends; a stronghold; a deed, charter, or record, by which rights, etc., are defended or maintained. MUNIMENT HOUSE, strong fire-proof building or apartment, suited to contain and preserve archives and similar valuables.

MUNITION, n. *mū-nĭsh'ŭn* [F. *munition*—from L. *munitiōnem*, a fortification—from *munĭō*, I fortify]: materials used in war, as *munitions* of war; in *OE.*, a fortification; a stronghold.

MUNJEET, n. *mŭn'jēt* [Skr. *majith*], (*Rubia cordifolia* or *munjista*): species of Madder (q.v.), whose root yields an excellent red dye. The plant differs from the common madder in its more distinctly quadrangular stem, its cordate-oblong leaves, commonly in fours, and its red berries. It is a native of India, China, Japan, Central Asia, and Siberia. The root has long been used in India as affording a red dye; and is now an article of export to Europe, as a substitute for madder.

MUNK, *mûnk*, HANS: 1589–1628, June 3; b. Elsinore, Denmark: navigator. He was the son of a noted pilot, and was bred to the sea. For many years he made annual voyages from Denmark and Norway to the n. shores of America, and achieved wide repute for his geographical knowledge and skill as a navigator. In 1619 King Christian IV. commissioned him to undertake the discovery of a n. w. route to the Indies. He sailed from Elsinore May 16, with two ships and nearly 700 men; sighted Cape Farewell June 20; and then advanced n. in Davis Strait to about 69°. With two of his crew—the sole survivors of his expedition—he landed on the coast of Norway 1620, Sep. 25. He started on a second expedition 1621, Mar., advanced to 75°, and returning 1623, June, reported an open sea beyond that degree of latitude, an assertion then ridiculed but now believed. After making several trade voyages to N. America, he undertook a third Arctic expedition, and died in the polar region before completing it.

MUNK, SALOMON: orientalist: b. Glogau, Silesia, of Jewish parentage, 1805, May 14. He was educated in Berlin, Bonn, and Paris; studied the oriental languages; and was custodian of oriental manuscripts in the National Library at Paris 1840–52. He subsequently traveled in Egypt and Syria; became entirely blind; and, despite his affliction, was appointed prof. of Hebrew, Chaldaic, and Syriac in the College of France 1865. M. published numerous works, including an annotated edition of Maimonides's *Doctor Perplexorum; Palestine: Geographical and Historical Description; Commentary of Rabbi Tanchoum of Jerusalem on the Book of Habakkouk; Reflections on the Worship of the Ancient Hebrews and its Harmony with other Worships of Antiquity;* and many articles on Arabic and Hebrew philosophy in *Dictionnaire des Sciences Philosophiques.*

MUNKÁCS, *môn-kâch':* market-town of Hungary, on an affluent of the Theiss, 178 m. n.e. of Pesth. The inhabitants are mostly artisans, and the chief production is hosiery. There are also alum manufactories, saltpetre-works, and, in the vicinity, iron-works, and mines of rock-crystal, called Hungarian diamonds. A short distance east from the town is the fortress (founded 1359) of M. upon an isolated height, which, though small and insignificant-looking, yet, from its strong walls and advantageous position, has, for the last few centuries, withstood many a siege. Since the beginning of the 19th c. it has been used as a state-prison.—Pop. (1880) 9,644.

MUNKÁCZY, *môn-kât'se*, **MIHÁLY** (Michael): Hungarian painter: b. Munkacs, Hungary, 1846, Oct. 10; real name Michael Lieb. His parents were slain by the Russians, and he was apprenticed to a cabinet maker. He worked as a carpenter at Arad six years; then studied art at Pesth 1863; at Gyula (in portrait painting); then at the Vienna Acad.; next in Munich, under Franz Adam, where he won three first prizes; and at Düsseldorf, in genre painting, achieving his first distinction, 1869, by his *Last Day of a Condemned Man.* He removed to Paris, 1872; worked much in scenes of Paris life 1876; executed *Milton dictating Paradise Lost*, 1878; *Christ before Pilate*, 1881; *Christ on Calvary*, 1883–4, an immense canvas, 19 x 25 ft., representing the terror of the moment of the death on the cross; and *Last Moments of Mozart*, 1885. The last three were specially exhibited in New York 1886–7, and two of them were sold—the *Christ before Pilate* to John Wanamaker, Philadelphia, for more than $100,000; and the *Mozart* to R. A. Alger, for $50,000, and given by him to the Detroit Museum. M. married, 1874, the Baroness de Marches.

MUNNION: see **MULLION**.

MUNSHI, or MOONSHEE, n. *môn'shē* [Ar.]: see **MOONSHEE**.

MUNSON, *mŭn'son*, ÆNEAS: 1734, June 24—1826, June 16: physician: b. New Haven, Conn. He graduated at Yale 1753, acted there as tutor and studied divinity under Pres. Stiles; was chaplain in the army 1755; studied medicine under Dr. John Darby, and began practice, Bedford, N. Y., 1756; removed 1760 to New Haven; was a physician of great repute more than 50 years, pres. of Conn. Med. Society, several times member of legislature during the Revolution, and prof. in Yale Med. School from its organization to his death.

MUNSTER, *mŭn'stĕr:* largest of the four provinces of Ireland. It occupies the s.w., and is bounded n. by Connaught, e. by Leinster, w. and s. by the Atlantic; 6,064,579 statute acres. It contains six counties, Clare, Cork, Kerry, Limerick, Tipperary, and Waterford: see these titles. Pop. (1841) larger than that of any of the other provinces; (1871) 1,393,485; (1881) 1,323,910—in both years, more than 400,000 less than Ulster.

MÜNSTER, *mün'stĕr:* chief town of the dist. of M., and cap. of all Westphalia; in a sandy plain, midway between Cologne and Bremen; 65 m. n.e. of Düsseldorf; 51° 55′ n. lat., 7° 40′ e. long., at the confluence of the Aa with the Münster canal. Pop. (1871) 24,815; (1880) 40,434.

M., which is a bishopric, and the seat of a military council, a high court of appeal, and other governmental tribunals, is one of the handsomest towns of Westphalia, retaining numerous remains of mediæval architecture, whose quaint picturesqueness is enhanced by the numerous trees and shady alleys by which the squares and streets are ornamented. Among its 14 churches, of which the majority are Rom. Cath., the most noteworthy are the cathedral, built between the 13th and 15th c., and despoiled of all its internal decorations by the Anabaptists; Our Lady's Church, with its noble tower; the splendid Gothic church of St Lambert, in the market-place, finished in the 13th c., on whose tower may still be seen the three iron cages in which the bodies of the Anabaptist leaders, John of Leyden, Knipperdolling, and Krechting, were suspended, after they had suffered the most horrible death; and the church dedicated to St. Lugderus, the first bp. of M., with its singular round tower, surmounted by an octagonal lantern. The Gothic town-hall possesses historical interest in being the spot at which, 1648, the Peace of Westphalia was signed in a large hall, lately restored, which contains portraits of all the ambassadors who were parties to the treaty. The palace, built 1767, is surrounded by fine pleasure-grounds, including horticultural and botanical gardens, connected with the academy; and these, with the ramparts, which, since the Seven Years' War, have been converted into public walks, form a great attraction to the city. M. is well provided with institutions of charity and benevolence. The old Rom. Cath. Univ. of M. was dismembered 1818, and its funds apportioned to other educational establishments; and the present

acad. which comprises a Rom. Cath. theological and a philosophical faculty, is now the principal school: it has a library of 50,000 vols., a nat. history museum, and various collections of art and antiquity. M. has one gymnasium, a normal school for female teachers, and a number of town schools. The industrial products include leather, woolen fabrics, thread, starch, and sugar; and there are good carriage manufactories, breweries, and distilleries. The trade is limited to the produce of the country, the principal of which are the noted Westphalian ham and sausages.

M. was known under the name Mimigardevorde in the time of Charlemagne, who, 791, appointed it as the see of the new bp. of the Saxons, St. Ludgerus. Toward the middle of the 11th c. a monastery was founded on the spot, which in course of time derived the present name of the town from its vicinity to the minster, or monastery. In the 12th c., the bishopric was elevated into a principality of the empire. In the 13th c., the city was incorporated in the Hanseatic League; and 1532, it declared its adhesion to the Reformed faith, notwithstanding the violent opposition of the chapter. During 1535 and 6, M. was the scene of the violent politico-religious movement of the Anabaptists, when the excesses of these pretended reformers worked a violent reaction in the minds of the people, which had the effect of restoring the prestige of the episcopal power; and though the citizens occasionally made good their attempted acts of opposition to their spiritual rulers, they were finally reduced to submission under Bp. Christopher Bernhard of St. Gall, who having, 1662, built a strong citadel within the city, transferred the episcopal place of residence thither from Koesfeld, where it had been established by earlier bishops. In the Seven Years' War, M. was repeatedly besieged and taken by both the belligerent parties. The bishopric of M., which since 1719 had been merged in the archbishopric of Cologne, though it retained a special form of government, was secularized 1803, and divided among various royal houses; but subsequently shared in the common fate of other German provinces, and was for a time incorporated with France. The Congress of Vienna gave the greater part of the principality to Prussia, a small portion being apportioned to the House of Oldenburg, while Hanover acquired possession of the Münster territories of the mediatized Dukes of Aremberg.

MUNT'JAK (*Cervus muntjac*, *Cervulus vaginalis*, or *Stylocerus muntjac*): species of deer, abundant in Java, Sumatra, and other islands of the same region; about one-fifth larger than the roebuck, which it considerably resembles in form. It is a solitary animal, and inhabits dense thickets and forest-covered hills. The horns are remarkable, as there springs from the common base of each an additional horn about an inch and a half in length; the principal horn, which is simple, curved, and pointed, being about five inches in length. The female

has no horns. The male has large canine teeth or tusks, which also are lacking in the female. Allied species are found in India and China.

Muntjak (*Cervus muntjac.*)

MUNTZ METAL, n. *mŭnts:* an alloy used in the form of thin plates for the sheathing of ships: see under METAL.

MÜNZER, *münt'sėr*, THOMAS: one of the leaders of the Anabaptists (q.v.): 1490–1525; b. Stolberg, in the Harz. He took his degree A.M. at Wittenberg, and for some time preached the doctrines of the Reformation in Zwickau and other places. Ere long, however, he adopted mystic views, and declaimed against what he called the 'servile, literal, and half' measures of the Reformers, requiring a radical reformation both in church and state according to his 'inward light.' He was a socialist, with semi-pantheistic views; and sought to establish a theocracy. Proclaiming an entire community of goods, he incited the populace to plunder the houses of the wealthy. Mühlhausen fell for a time under his sway, and that of another fanatic named Pfeifer, who joined him. He was active in the Peasant War, and inflamed the spirits of the insurgents by the wildest speeches and songs; but they were utterly defeated 1525, May 15, after a severe conflict, at Frankenhausen, by the Elector John and Duke George of Saxony, the Landgrave of Hesse, and the Duke of Brunswick. M. fled, but was taken and carried to Mühlhausen, where he was beheaded with Pfeifer and a number of others. He showed no dignity or courage in the closing scenes of his life. See Strobel's *Leben Schriften und Lehren Thom. Münzer's* (Nürnb. 1795); Seidemann's *Thom. Münzer* (Dresd. and Leips. 1842); and Heinrich Leo in the *Evangelische Kirchenzeitung* (Berl. 1856).

MURÆNA, *mū-rē'na:* genus of malacopterous fishes, of those to which the name Eel is commonly given; all the eels being sometimes included in the family *Muræ-nidæ:* see EEL. The true *Muræna* have no fins, except the dorsal and anal, which are low and fleshy. They have one row of sharp teeth in each jaw. The head is very large, and the jaws are moved with great power. The M. of the Romans, or MURRY (*M. helena*), abounds in the Mediterranean, and is sometimes of large size, four feet or more in length, golden yellow in front, and purple toward the tail, beautifully banded and mottled. It is much thicker in proportion to its length than any of the fresh-water eels. Its flesh is white and highly esteemed. It refers salt-water.

Muræna (*M. helena*).

but can accommodate itself to a fresh-water pond. The ancient Romans kept and fed it in vivaria. That Vedius Pollio fed his murænas with offending slaves is a familiar story. This M. has been caught on the British shores. Allied is the genus *Sidera*, found in the Pacific.

MURAGE, n. *mū'rāj* [L. *murus*, a wall]: money paid for keeping the walls of a city in repair.

MURAL, a. *mū'răl* [F. *mural*—from L. *murālis*, belonging to a wall—from *murus*, a wall: It. *murale*]: pertaining to or resembling walls. MURAL CIRCLE, the principal fixed instrument in an observatory, consisting of a large graduated circle fixed on a solid perpendicular wall (see CIRCLE, MURAL). MURAL CROWN, in *anc. Rome*, the crown bestowed on him who first mounted the wall of a besieged town, and fixed there the standard of the army. In *her.*, a crown in the form of the top of a circular tower, masoned and embattled, representing the crown given by the Romans as a mark of distinction to the soldier who first mounted the walls of a besieged town.

Mural Crown.

MURAT, *mü-râ'*, JOACHIM, King of Naples: 1768, Mar. 25—1815, Oct. 13 (reigned 1808–15); b. at La Bastide Fortunière, near Cahors, France; son of a farmer, or, as some say, of an innkeeper. He was at first intended for the priesthood, and began the study of theology and canon law at the Univ. of Toulouse, but entered the army, and, being threatened with punishment for insubordination, deserted, and after spending some time at home, went to Paris, where, it is said, he was for some time a waiter at a café, but soon obtained admission into the Constitutional Guard of Louis XVI. On the outbreak of the Revolution, he was made sub-lieut. in a cavalry regiment. His gallantry and extreme republicanism soon won him the rank of colonel. He attached himself closely to Bonaparte, under whom he served in Italy and in Egypt, signalizing himself in many battles; rose to the rank of a gen. of division (1799); returned with Bonaparte to France; and rendered him most important assistance on the 18th Brumaire, by dispersing the Council of Five Hundred at St. Cloud. Bonaparte now intrusted him with the command of the Consular Guard, and gave him his youngest sister, Caroline, in marriage. M. commanded the cavalry at Marengo, where he greatly distinguished himself. On the establishment of the French Empire, he was loaded with honors. He continued to command the cavalry in the armies led by the emperor, and contributed not a little to the victory at Austerlitz, and to many other victories. In 1806, the newly-erected grand duchy of Berg (q.v.) was bestowed on him. 1808, Aug. 1, he was proclaimed king of the Two Sicilies by the style Joachim I. Napoleon. He took possession of Naples, but the Bourbons, through the support of Britain, retained Sicily.

M. possessed the qualities requisite for the most brilliant cavalry general in Europe rather than those of a king. He was dashing, magnificently brave, and his soldiers enthusiastically followed him; but he was deficient in political skill and energy; yet by the moderation of his government, he won the hearts of his subjects; and he instituted some beneficent reforms. Even his love of pomp and show, and the theatrical splendor of his equipment, which were a subject of mirth in France and Germany, rather gratified the Neapolitans. He endured with difficulty the yoke of Napoleon, which left him little but the outward show of royalty. In the expedition against Russia, he commanded the whole cavalry, but on its failure he returned to Naples, anxious and discontented. He joined the French army again 1813, but after the battle of Leipzig, withdrew to his own dominions, determined on breaking the French fetters with which he was bound. He concluded a treaty with Austria, and a truce with the British admiral, and promised the allies an auxiliary corps. He hesitated, however, even after his new course seemed to have been decisively adopted; and, finding his position insecure after Napoleon's overthrow, he entered into private communications

with him at Elba. On the emperor's return to France, M. placed himself at the head of an army of 40,000 men, and commenced a hasty war against Austria. He was defeated at Ferrara, 1815, Apr. 12, and again at Tolentino, May 2. With a few horsemen he fled to Naples, where all was insurrection and commotion; thence to the island of Ischia, and found his way to France, while his wife and children took refuge in the British fleet. After Napoleon's final overthrow, he found refuge in Corsica, from which he proceeded in a foolhardy manner with a few followers to the coast of Naples, and proclaimed himself king and liberator, but was presently taken prisoner, and after trial by a court-martial under a law of his own passing was condemned and sentenced to be shot in half an hour. He wrote a pathetic farewell to his wife and children; and the sentence was executed in a hall of the castle of Pizzo. See Léonard Gallais, *Histoire de Joachim Murat* (Paris 1828), and Coletta, *Histoire des Six derniers mois de la Vie de Joachim Murat* (Paris 1821). His widow assumed the title Countess of Lipona, and resided in the neighborhood of Trieste, where she died 1839. His two sons went to the United States. NAPOLÉON ACHILLE M., elder son, settled in Florida; published a number of works on the constitution and politics of the United States; and died 1847, Apr. 15. NAPOLÉON LUCIEN CHARLES, younger son, married an American lady 1827, but suffered several reverses in fortune, and Madame M. was obliged to open a boarding-school for the support of herself and her husband. Twice he attempted to return to France secretly (1837 and 44), but failed on both occasions. The revolution of 1848, however, opened the country to him. He attached himself closely to Prince Louis Napoleon; and was in 1849 French ambassador extraordinary at Turin. In 1852 he was made a senator; and in 1853 he received the title Prince. The Italian revolution appeared to present some chances for him, but nothing came of these. He was made prisoner by the Germans at Metz 1870.

MURATORI, *mô-râ-tō'rē*, LUDOVICO ANTONIO: famous antiquary and historian: 1672, Oct. 21—1750, Jan. 23; b. Vignola, in the duchy of Modena. Having entered into holy orders, without, however, accepting any ecclesiastical office, his life was devoted partly to the literature of his profession, but mainly to researches in history, both sacred and profane, especially the history of his native country. In his 22d year, he was appointed one of the librarians of the Ambrosian Library at Milan, a post which has since received equal celebrity from a successor, Cardinal Angelo Mai (q.v.). Here he published a collection of inedited Greek and Latin fragments, *Anecdota Græca* and *Anecdota Latina*. But his most important labors were reserved for the capital of his native duchy, whither, 1700, he was recalled by the Duke of Modena, to take charge of the celebrated D'Este Library, and of the ducal archives. From the date of his return to Modena, M. applied himself more exclusively to Italian mediæval

history. In 1723 vol. I. of his great collection. *Rerum Italicarum Scriptores*, appeared, and the work proceeded at regular intervals for nearly 30 years, the last of its 28 folio vols. bearing the date 1751. This immense publication, which was produced by the joint contributions of the princes and higher nobility of Italy, ranges through all the chronicles of Italy from the 5th to the 16th c. illustrated with commentaries and critical notices. It was accompanied by a collection of dissertations, illustrative of the religious, literary, social, political, military, and commercial relations of the several states of Italy during the period (6 vols. folio, 1738–42), a work not exempt from errors, yet a treasure-house of mediæval antiquities. During these prodigious labors, M. carried on an active literary correspondence with the scholars of the various countries of Europe, and contributed essays to the principal historical and literary academies, of most of which he was a member. He undertook also a general History of Italy from the commencement of the vulgar era to his own time; in 12 vols. 4to, and still has value as a book of reference, having been continued by Coppi to 1819. M.'s collection of *Inscriptions* (6 vols. folio, 1739–43), is an important contribution to classical scholarship; and he left also works of standard merit in jurisprudence, literary criticism, poetry, biography, and even of the history of medical science. In the studies of his own profession, liturgical, historical, dogmatical, and even ascetical, M. was scarcely less distinguished than if he had made these the pursuit of his life. Some of his opinions were regarded with disfavor; but the learned Pope Benedict XIV., without expressing direct approval of the opinions in question, declared them free from the imputation of being contrary either to the doctrine or to the discipline of the church. Although M.'s life was essentially that of a scholar, yet his exactness in discharging the duties of a parish priest was beyond all praise. He died at Modena. His works fill 46 vols. in folio, 34 in 4to, 13 in 8vo, and many more in 12mo. Some were published by his nephew, G. F. Muratori, from whom we also have a life of his distinguished uncle, in 4to, printed at Omer 1758.

MURATO'RIAN FRAGMENT, or CANON OF MURATORI: list of New Testament books received in the church at the date of its writing—last quarter of the 2d c.; named from its discoverer, Muratori (q.v.). Its authorship is unknown. The list, which is only fragmentary, and found in a MS. of the 8th or 9th c., includes all the books of the present canon, except *Hebrews*, *James*, *I Peter*, *II Peter*, *III John*.

MURCHISON, *mêr'kĭ-son*, Sir RODERICK IMPEY, D.C.L., LL.D.: geologist and geographer: 1792, Feb. 19—1871, Oct. 22; b. Tarradale, Ross-shire. He was educated at the grammar school, Durham; and having a bias for military life, next studied at the Military College, Marlow. He entered the army at an early age, and served as an officer in the 36th regt. in Spain and Portugal. He was placed on the staff of his uncle, Gen. Sir Alexander Mackenzie, and then obtained a captaincy in the 6th dragoons. Quitting the army 1816, he applied himself to science—especially geology. He afterward travelled in various parts of the globe. He found the same sedimentary strata lying in the earth's crust beneath the old red sandstone in the mountainous regions of Norway and Sweden, in the vast and distant provinces of the Russian empire, and in America. The result of his investigations was the discovery and establishment of the Silurian system, which won for him the Copley medal of the Royal Soc., and European reputation as a geologist, which his subsequent exposition of the Devonian, Permian, and Laurentian systems increased and confirmed. He explored several parts of Germany, Poland, and the Carpathians; and 1840 he commenced a geological survey of the Russian empire, under the countenance of the imperial government. M. de Verneuil was associated with him in this great work, completed 1845. Struck with the resemblance in geological structure between the Ural Mountains and the Australian chain, M., in his anniversary address 1844, first predicted the discovery of gold in Australia. In 1846, six years before that metal was practically worked, he addressed a letter to the pres. of the Royal Geological Soc. of Cornwall, inciting the unemployed Cornish tin-miners to emigrate and dig for gold in Australia. He was elected pres. of the British Assoc. for the Advancement of Science 1846; pres. of the Royal Geographical Soc. 1844 and 5; re-elected 1857, and continued in office till 1870, when he was compelled to resign it by paralysis. His anniversary addresses to the geographers were of great interest and value. Perhaps no man of the present century has done more to promote geographical science at home, and kindle the spirit of adventure among those engaged in Arctic exploration and African discovery. He was interested especially in Dr. Livingtone's work in Africa. In 1855, he succeeded Sir H. De la Beche in the office of director of the Museum of Practical Geology. He was a D.C.L. of Oxford, LL.D. of Cambridge, and a vice-pres. of the Royal Soc. He was knighted 1846, made K.C.B. 1853, and a baronet 1863. From the emperor of Russia he received the grand cross of St. Anne, and that of St. Stanislaus. His wealth and high social position enabled him to make his house the resort of the most distinguished men in science, art, literature, and public life. Not long before his death he founded, with a gift of £6,000, a chair of geology and mineralogy in the Univ. of Edinburgh. The greater portion of his contributions to

science were published in *Transactions* of the Geological and other societies. His principal works were *The Silurian* (1836); *The Geology of Russia in Europe and Ural Mountains*, 1845 (2d ed. 1853). He also published vols on the *Tertiary Deposits of Lower Styria, etc.*, (1830), the *Geology of Cheltenham* (1834), etc.,—See *Life of Sir Roderick M.* by Arch. Geikie, LL.D. (1875), and obituary notice by Sir Henry Rawlinson in *Proceedings of the Royal Geographical Society*, XVI. No. 4.

MURCHISONIA, n. *mėr'kĭ-sō'nĭ-ă* [after Sir Robert I. *Murchison*]: a genus of fossil gasteropodous mollusca belonging to the family *Haliotidæ*. The genus consists of at least 50 species, all characteristic of the Paleozoic rocks, occurring in the series from the Lower Silurian up to the Permian. The shell differs from the large genus *Pleurotomaria* only in being very much elongated. Like it, the whorls are sculptured and zoned, the aperture is channelled in front, and the outer lip is deeply notched. MUR'CHISONITE, n. *-sŏn-īt*, a golden or grayish-yellow variety of felspar; a silicate of alumina and potash.

MURCIA, *mėr'shĭ-a*, Sp. *môr'thē-â:* former province of Spain, now subdivided into the smaller provinces of Albacete and Murcia; in the s.e. of the peninsula; bounded n. by New Castile, e. by Valencia, s. by the Mediterranean, w. by Granada, Andalusia, and New Castile; 10,311 sq. m. In the n.e., the province is partly level; in the s.w. it is composed of great valleys, high plateaus, and mountain ranges. The coast comprises stretches of desert. The principal river is the Segura, which flows through the middle of the province, from w. to e. On the whole, M. is not very productive, and never will be, on account of the failure of water, caused partly by destruction of the forests. The only fertile districts are the valleys of the Segura, and the side-valleys of Lorca, Albacete, Chinchilla, and Almansa. The Esparto wastes have remained uncultivated since the banishment of the Moriscoes 1610; and the canal of M., intended to irrigate the arid Campo de Cartagena, is not yet finished. M. is one of the most thinly peopled districts of Spain. The n. yields wheat and barley; the s. maize, fruits, wine, oil, silk, and hemp. Goats, sheep, and swine are reared in great numbers. In metals, salt, and mineral springs, M. is abundant; it has also many smelting-works for iron, lead, and copper ores, brimstone and alum. The roads, however, are wretched, and industry in general is backward. The province was frightfully devastated by a great earthquake, 1829, Mar. 18–21. M. was conquered by the Arabs 711; after the fall of the caliphate of Cordova, it became an independent Arab kingdom, but, six years afterward, was subjugated by King Ferdinand III. of Castile 1241.—Pop. (1877) 670,733 (modern province 451,611).

MUR'CIA [the Roman *Murgi*]: large, important, and ancient town of Spain, cap. of the province of M., on the left bank of the Segura, near the junction of that river with the Sangonera, 50 m. s.w. of Alicante. It stands in the midst of a beautiful and luxuriantly productive *huerta* or garden, 16 m. in length, and 7 to 8 m. wide. This *huerta* forms a portion of what is called the vale of M.; is well watered, has a bright green appearance even in winter; produces wheat, flax, pulse, and vegetables, and grows innumerable mulberry, orange, fig, and palm trees. The streets of M. are narrow but clean, and the houses are gaudily painted in pink and yellow. Its squares are filled with cypress, orange, lemon, and other southern trees. It is the see of a bp. suffragan to Toledo; the cathedral is surmounted by a tower begun 1522, completed 1766, and crowned by a dome from which a magnificent view is obtained. The city contains few objects of fine art, which is accounted for by the fact that, on the occasion of its siege by Sebastiani, that general, after promising that persons and property should be respected, entered the town 1810, Apr. 23, and rifled it of its wealth and art-treasures. Silks, linens, baskets, mats, and cordage are manufactured, and oil-mills, tanneries and other works are in operation. Pop. (1877) 91,805.

MURDER, n. *mėr'dėr* [Goth. *mauthrjan;* Ger. *morden,* to slay: Icel. *mord,* a secret slaying: Bohem. *mord,* slaughter: connected with Swiss *morden;* Low Ger. *murten,* to crush: comp. Gael. *marbh,* to kill]: the killing of a human being by a person of a sound mind, and with premeditated malice: INT. a cry of alarm arising from bodily fear: V. to kill or slay with premeditated malice; to put an end to. MUR'DERING, imp. MUR'DERED, pp. *-dėrd:* ADJ. slain with premeditated malice. MURTHER, n. *mėr'ŧhėr,* an old spelling of MURDER. MUR'DERER, n. *-ėr,* one who unlawfully kills a human being. MUR'DERESS, n. *-ĕs,* a woman who kills a human being unlawfully. MUR'DEROUS, a. *-ŭs,* intending murder: done with intent to murder; bloody; sanguinary. MUR'DEROUSLY, ad. *-lĭ.* TO MURDER THE QUEEN'S ENGLISH, in *familiar language,* to commit improprieties in grammar or spelling; to spoil. MURDERING-PIECE, in *OE.,* a small piece of ordnance; a cannon.—SYN. of 'murder, v.': to assassinate; slaughter; destroy;—of 'murderer': assassinator; homicide; cut-throat; blood-shedder; manslayer;—of 'murderous': fell; savage; blood-guilty; blood-thirsty; cruel.

MUR'DER: crime of killing a human being by a sane person with malice aforethought. Under the laws of nearly all civilized countries it is punishable with death. It is immaterial what means are employed to effect the object. Blackstone says that the name of M., as a crime, was anciently applied only to the secret killing of another, which the word *moërda* signifies in the Teutonic language. And among the ancient Goths in Sweden and

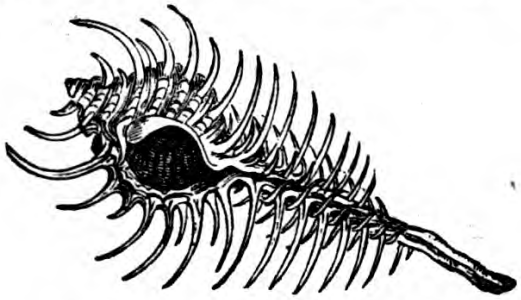
Denmark, the whole vill or neighborhood was punished for the crime, if the murderer was not discovered. M. is defined by Coke thus: 'When a person of sound memory and discretion unlawfully killeth any reasonable creature in being, and under the king's peace, with malice aforethought, either express or implied.' Almost every word in this definition has been the subject of discussion in the numerous cases that have occurred in the law-courts. The murderer must be of sound memory or discretion, i.e., he must have attained a certain age, usually not less than 14 years; and not a lunatic or idiot. The act must be done unlawfully, i.e., not in self-defense, or from other justifiable cause. The person killed must be a reasonable creature; hence killing a child in the womb is not M., but is punishable as a different crime (see INFANTICIDE). The essential thing in M. is that it be done maliciously and deliberately; hence, in cases of hot blood and scuffling, the offense is generally manslaughter only. Killing by duelling is thus M., for it is deliberate. To make good the plea of self-defense, there must be such violence offered to a man as would put one, using good discretion, in fear for his life or limb. In the case of starving shipwrecked sailors killing one of their number for food to preserve their own lives, it was decided in England in the 'Mignonette case,' 1884, that though there might be conceded some degree of justification from necessity in certain conceivable cases, 'it is not correct to say that there is any absolute or unqualified necessity to preserve one's life. On the contrary, it is frequently our highest duty to sacrifice it.' Accordingly, Chief-Justice Coleridge—the other judges assenting—sentenced the prisoners to death for murder, but with recommendation to mercy; and their sentence was changed to six months' imprisonment. It is not necessary, to constitute M., that the murderer kill the man that he intended, provided he had a deliberate design to murder some one. Thus, if one shoots at A, and misses him, but kills B, this is M., because of the previous felonious intent, which the law transfers from one to the other. So if one lays poison for A, and B, against whom the poisoner had no felonious intent, takes it, and is killed, this is M. The law in Mass. is that M. committed 'in perpetrating or attempting to perpetrate any crime punishable with death, or imprisonment for life,' is M. in the first degree; all other M. is M. in the second degree. On this point there are some differences in the laws of different states. —Formerly, in England, the Benefit of Clergy (q.v.) was allowed in cases of M., till it was abolished by 7 and 8 Geo. IV. c. 28. The sentence of death on murderers is carried out by hanging; formerly, in Britain, and other countries, the murderer was sentenced after death to be hung on a gibbet in chains near the place of the crime; dissection was added as part of the sentence, and the execution was to take place on the next day but one after sentence. Now an interval varying from a fortnight to several months

usually takes place, and in Britain the body is usually buried in the precincts of the prison; but in the United States it is usually yielded to kindred or friends claiming it. In some of the states there is a movement toward infliction of the death-penalty by electricity instead of by hanging; in New York this change was established by law, taking effect 1890. See MANSLAUGHTER: HOMICIDE.

MURDOCK, *mĕr'dok*, JAMES EDWARD: actor and elocutionist: b. 1811, Jan. 25, Philadelphia. He learned his father's trade of bookbinder; but 1829, Oct. 13, came out as actor of Frederick in Kotzebue's *Lover's Vows*, and was many years on the stage in the chief cities of the United States, meeting critical approval, but not having great popular success as a star. He appeared with Fanny Kemble 1833. In 1838 he left the stage for a time and had a school for physical and mental culture in Boston. He became stage-manager at Chestnut St. Theatre, Philadelphia, 1840; then for four years was a lecturer on Shakespeare and teacher of elocution; 1845 resumed acting, playing Hamlet at Park St. Theatre, New York, and elsewhere from Canada to California. In 1856 he had moderate success at the Haymarket Theatre, London; was settled on a farm near Lebanon, O., 1857-8; during the civil war acted as nurse in hospitals, gave readings for the benefit of the sanitary commission, and served as volunteer aide on staff of Gen. W. S. Rosecrans; and subsequently settled at Cincinnati as prof. of elocution at the coll. of music. He was joint author with Wm. Russell of *Orthophony, or Culture of the Voice* (1845), and 1880 published *The Stage*.

MURE, n. *mūr*: in *OE.*, a wall: V. to inclose in walls: see MURAL, and IMMURE.

MUREX, n. *mū'rĕks* [L. *murex*, the shell-fish yielding a purple dye]: Linnæan genus of gasteropodous mollusks, of which has now been formed the family *Muricidæ*, belonging to the order *Pectinibranchiata* of Cuvier. The



Woodcock-Shell (*Murex tenuispinæ*).

sexes are distinct; the animal has a broad foot, often much expanded; the eyes are not on stalks; the shell has a straight canal in front, often prolonged through part of a very long beak; no canal behind. The *Muricidæ* all prey on other mollusks, boring through the shells with their hard-toothed proboscis. The name ROCK-

SHELL is often given to many species of M.; and some, from the length of the beak, are called WOODCOCK-SHELL. Some have the shell beset with long and regularly arranged spines. The whorls of the shell are marked with ridges, or *varices*. Species are found in all parts of the world; the largest are tropical. The ancients obtained their purple dye (see TYRIAN PURPLE) from species of M., particularly *M. trunculus* and *M. brandaris*. The VENUS COMB of the Indian seas is *M. tribulus*, a very delicate and beautiful shell, with many long thin spines. Fossil *Muricidæ* are numerous, but are scarcely found in any formation older than the eocene tertiary. MUREXAN, n. *mū-rĕks′ăn*, purpuric acid. MUREX′IDE, n. *-ĭd*, purpurate of ammonia, or Roman Purple, a curious coloring matter obtained from guano. It is similar to the purple dye or Tyrian purple of the ancients. Murexide is a product of uric acid, and as this exists in abundance, and in a very free state, in guano, that material has been found one of the best sources from which to obtain it. One process of production used by the chief manufacturer is to dissolve uric acid in dilute nitric acid, and after evaporating for some time at a temperature a little short of boiling, while still hot, to add a slight excess of ammonia. Two compounds are formed by this process, Alloxan and Alloxantin, and their mutual reaction on each other results in the formation of the beautiful minute green metallic-lustered crystals of murexide, which, in combination with some of the compounds of lead and mercury, yield most brilliant red and purple dyes. Murexide is used in printing both cotton and silk goods, under the name 'Roman-purple style.'

MURFREE, *mėr′frē*, MARY NOAILLES (pen-name CHARLES EGBERT CRADDOCK): author: b. about 1850, grand-daughter of Col. Hardy M., who emigrated, 1807, from N. C. to Tenn., where Murfreesboro was named in his honor. Her father was a lawyer, William L. M., of Nashville, and her mother daughter of Col. Dickerson of Grantlands, near Murfreesboro, the finest private residence in that region. The losses of the civil war caused the family to leave Nashville and live in the old mansion at Grantlands about 15 years, removing thence to St. Louis, Mo. The summers for 15 years of Miss M.'s early life were spent among the mountains of E. Tenn., where much of the material of her stories was gathered; and about 1879 she began the series of powerful stories of Tennessee mountain life which caused her to be ranked as one of the most original and interesting of American novelists. Mr. Howells gave the earliest a place in the *Atlantic Monthly* but Mr. T. B. Aldrich, succeeding Howells as editor, more particularly brought out the new writer. Her writings are, *In the Tennessee Mountains*, and *Where the Battle was Fought* (1884); *Down the Ravine*, and *The Prophet of the Great Smoky Mountains* (1885); *In the Clouds* (1886); *The Story of Keedon Bluffs* (1887); and *The Despot of Broomsedge Cove* (1888).

MURFREESBORO, *mĕr′frēs-bŭr-rō:* city, cap. of Rutherford co., Tenn., on Stone river and the railroad from Nashville to Chattanooga, almost at the centre of the state, on the w. side of its central elevated basin, 32 m. s.e. of Nashville. It is well built, of brick chiefly, has a fine court-house and public square, banks, manufactories, flour and saw mills, carriage factories, pork-packing establishments, cotton gins, and large trade in grain, cotton, and the productions of the fertile country around it. It was cap. of the state 1817–27. Pop. about 3,800.

MUR′FREESBORO, BATTLE OF; or BATTLE OF STONE RIVER: one of the severest and most bloody battles of the civil war, in proportion to the forces engaged. The town of M. had been occupied early in the summer of 1862 by a small Union force, and July 13 was taken by Gen. Forrest, and a Michigan regt. made prisoners. It soon became the centre from which Gen. Bragg operated with about 15,000 cavalry and over 30,000 infantry. Gen. Rosecrans moved from Nashville, 32 m. n.w. of M., late in Nov., with about 40,000 infantry and 3,000 cavalry, into a strong position near M., from which skirmishing began after nearly a month. Bragg having meanwhile sent his cavalry to threaten Rosecrans's communications. The first movements to bring Bragg to battle were made Dec. 26; and Dec. 31, after five days' sharp skirmishing, the Union line was formed w. of Stone river, Crittenden holding the left, Thomas the centre, and McCook the right; while Bragg's army was in position e. of the river, Breckenridge holding the right, Polk the centre, and Hardee the left. The sharp attack made by Crittenden on Breckenridge, on the morning of Dec. 31 was a favorable opening of the battle, but Hardee at the same time drove in McCook, compelling Rosecrans to draw in his lines to support his centre and right, with not only the sacrifice of his position, but with a loss of 28 guns. The result of this indecisive engagement was a vigorous attack by Bragg in force on the afternoon of Jan. 2, and a hotly-contested action, ending in the repulse of the Confederates with great loss, and their abandonment of M. Jan. 4. Bragg admitted a loss in the entire fight of 10,000, out of a force which he stated at 35,000, against, as he estimated, 70,000. Rosecrans estimated the Confederate force at 62,000, and stated his own at 43,000, of which he had 1,553 killed, 7,000 wounded, and 3,000 taken prisoners. Rosecrans took possession of M. Jan. 5, fortified it, made it his depot for supplies, and six months later advanced from it toward Chattanooga, upon which Bragg had fallen back.

MURGAB, or MURGHAB, *môr-gâb′:* river of central Asia, rising on the n. border of Afghanistan, in the Hindu Kush, immediately n. of the sources of the Heri (q.v.). The M. flows w., then n.w., and finally n., passing from among the mountains in which it has its source into the desert plains of Turkestan, where the volume of its water gradually diminishes, until it finally loses itself in a swamp in the sandy plain of Merv, after a course of about 400 m. In the upper part of its course it receives many tributaries, but none in the lower. The most noteworthy place on its banks is Merv (q.v.), or Meru (anc. *Antiocheia Margiana*), a town of Turkestan (now Russian), about 300 m. s.e. from Khiva. Merv was an important town in the days of the Seljuk dynasty, of which it was the cap., but is now very ruinous.

MURIACITE, n. *mū′rĭ-ă-sīt* [L. *murĭātĭcus*, pickled or lying in brine—from *murĭă*, brine, sea-water]: a term applied to the crystalline varieties of anhydrous sulphate of lime. MURIATE, n. *mū′rĭ-āt*, a salt formed by the combination of muriatic or hydrochloric acid with a base, as *muriate of soda*, or common salt. MU′RIAT′IC, a. *-ăt′ĭk*, from or resembling brine or sea-salt. MURIATIC ACID, an acid consisting of chlorine and hydrogen, obtained from common salt, emitted in a gaseous form from the craters of active volcanoes, and sometimes found in solution in crevices about their slopes; hydrochloric acid (q.v.).

MURIATIFEROUS, a. *mū′rĭ-ă-tĭf′ér-ŭs* [L. *murĭă*, sea-water; *fero*, I produce]: producing brine or sea-salt.

MURICALCITE, n. *mū′rĭ-kăl′sīt* [L. *murĭă*, sea-water; *calx* or *calcem*, lime]: a mineral consisting of the carbonates of lime and magnesia.

MURICATE, a. *mū′rĭ-kāt*, or MU′RICATED, a. *-kā-tĕd* [L. *murĭcātus*, full of sharp points—from *murex*, a shell-fish armed with sharp prickles]: formed with sharp points; covered with firm short points or excrescences.

MURIDÆ, n. plu. *mū′rĭ-dē* [L. *mus* or *mūrem*, a mouse]: family of rodent quadrupeds, containing many genera and a very large number of species, distributed over all parts of the world, and of which rats and mice may be regarded as typical examples. To this family belong also voles, lemmings, dormice, jerboas, marmots, etc. The M. are of the section of rodents having distinct clavicles. They have three or four molars on each side in each jaw, the molars at first furnished with rounded tubercles, which wear down till they exhibit mere roughened crowns. The typical M., and those most nearly allied to them, have scaly tails. Marmots, dormice, jerboas, etc., have hairy tails. There are great diversities of structure and habits among the M. All feed on vegetable food, but many do not refuse to eat animal substances.—The limits of the family M. are very differently stated by different naturalists. (See RAT: MOUSE: MARMOT: LEMMING: HAMSTER: JERBOA: VOLE.)

MURINE, a. *mū′rĭn*, pert. to mice.

MURIFORM, a. *mū'rĭ-fawrm* [L. *murus*, a wall; *forma*, a shape]: in *bot.*, wall-like, applied to tissues presenting the appearance of bricks in a wall.

MURILLO, *mū-rĭl'lo*, Sp. *mô-rē'lyo*, BARTHOLOMÉ ESTÉBAN: greatest Spanish eccles. painter: 16171–682, Apr. 3; b. Seville, of humble parentage. After receiving some education, he was placed with his relative, Juan del Castillo, to study painting. Having saved a little money, which he made by painting religious pictures for exportation to S. America—literally buying his canvas by the large quantity and painting it by the square yard—he went to Madrid 1641, was favorably and most generously received by his celebrated townsman, Velasquez, and, through his influence, was enabled to study the *chefs-d'œuvres* of Italian and Flemish art in the royal collections. In 1645, he determined to return to Seville, though advised to proceed to Rome by Velasquez, who offered him letters from the king. After settling in Seville, he received numerous important commissions, and was soon acknowledged as the head of the school there. In 1648, M. married a lady of fortune; and establishing a handsome residence, his house was the resort of people of taste and fashion. The Acad. of Seville was founded by him 1660, but he filled the office of pres. only during the first year. He fell from a scaffold when painting in Cadiz on an altar-piece for the Church of the Capuchins, returned to Seville, and soon afterward died from the injury which he received. In early years he painted many pictures illustrative of humble life; in these, the manner was darker and less refined than that of his later pictures, which are mostly scriptural or religious pieces. In the Louvre, and in England, there are about 40 of his works. His *Immaculate Conception* in the Louvre was purchased 1852 for nearly $120,000. Chief among his masterpieces are usually reckoned *Moses Striking the Rock*, *Return of the Prodigal*, and *St. Elizabeth of Hungary*. Critics attribute to M. three different styles, the cold, the warm, and the vapory—belonging respectively to his earlier, middle, and later periods; though not definitely separable into these periods, as in each period all three styles appear. M.'s work is characterized by truthful delineation, masterly technique, and expressive sentiment, rather than by imaginative force, mental depth, or lofty spiritual beauty. Sir David Wilkie, who greatly admired and carefully studied the Spanish school, has remarked, in reference to it: 'Velasquez and Murillo are preferred, and preferred with reason, to all the others, as the most original and characteristic of their school. These two great painters are remarkable for having lived in the same time, in the same school, painted for the same people, and of the same age, and yet to have formed two styles so different and opposite, that the most unlearned can scarcely mistake them; Murillo being all softness, while Velasquez is all sparkle and vivacity.'—M. in his personal character was amiable, gentle, and sincere.

MURK, n. *mėrk* [Icel. *myrkr*, darkness, *m rka*, to darken: Bohem. *mrak*, darkness: Lap. *murko*, mist, fog]: in *OE.*, darkness; want of light. MURKY, a. *mėr'kī*, dark; wanting light; obscure; gloomy. MUR'KILY, ad. *-lī*. MUR'KINESS, n. *-nĕs*, the state of being dark or gloomy.

MURMUR, n. *mėr'mėr* [the representation of a sound like that of running waters, wind among branches of trees, the hum of bees, and the like: L. *murmurārĕ*, to give out a low murmuring or hollow sound: Gr. *mormurein;* It. *mormorare;* F. *murmurer*, to murmur]: a low continually-repeated sound or sounds; a complaint uttered in a low suppressed tone: V. to give forth or utter low suppressed sounds; to complain: MUR'MURING, imp.: ADJ. giving forth low suppressed tones, as a *murmuring* brook; uttering complaints in low, half-suppressed tones: N. the utterance of complaints in half-suppressed tones; low confused noise. MURMURED, pp. *mėr'mėrd*. MUR'MURER, n. *-ėr*, one who complains or grumbles. MUR'MURINGLY, ad. *-lī*. MUR'MUROUS, a. *-ŭs*, attended with murmurs; exciting complaints.—SYN. of 'murmur, v.': to grumble; repine; lament; deplore; regret.

MURO, *mô'rō:* episcopal town of s. Italy, province of Potenza, 17 m. n.w. of the town of Potenza. Its castle, on a height overlooking the ravine, was the scene of the murder of Joanna I., Queen of Naples. Pop. 8,000.

MUROM, or MOOROM, *mô-rōm':* town in the s.e. of the govt. of Vladimir, in European Russia, 70 m. e.s.e. of Vladimir, on the right bank of the Oka, a tributary of the Volga. The chief industrial establishments are tanneries and sail-cloth and linen factories. The fisheries on the Oka supply the surrounding country. M. is noted for orchards and kitchen-gardens, the latter of which supply a great portion of Russia with cucumber-seed of the first quality. Gypsum quarries in the neighborhood are extensively worked during winter. There is large trade in wheat, flax, linseed, and timber. M. has a very picturesque appearance, and was formerly surrounded by impenetrable forests. It is frequently mentioned in the old national ballads, and is one of the most ancient towns of Russia. Pop. (1880) 10,700.

MURPHY, *mŭr'fi*, FRANCIS: temperance lecturer: b. Ireland, 1836, Apr. 24. His family were in moderate circumstances, but about 1849 acquired a small fortune by inheritance, and began entertaining liberally. He first became intoxicated when 13 years old. Three years later, he determined to shake off the habit and seek a career in the United States. Within 6 months after reaching New York, his dissolute habits forced him to leave the city. He then went into the country, worked on a farm about a year, kept sober, married, and after saving some money went to Portland, Me., and leased a hotel and bar. In a few months he was drinking as badly as ever. He lost all his property, and, as a last attempt to cure him of drunkenness, some of his friends had him placed in jail. While there, he became interested in the Sunday religious services, and 1870, Aug. 15, resolved never again to sell or drink another glass of liquor. On his release, he was invited to address a gospel temperance meeting in the Portland city hall, and he thus (1871, Apr.) entered on his well-known career as a temperance lecturer.

MUR'PHY, HENRY CRUSE: lawyer, statesman, and author: 1810, July 5—1882, Dec. 1; b. Brooklyn, N. Y. He graduated at Columbia College 1830; was admitted to the bar 1833; was assistant corporation counsel 1834, and soon afterward counsel and city attorney. He was an active writer and dem. political leader; one of the owners and editors of the Brooklyn *Eagle* 1841; mayor 1842; member of congress 1843–49; a leader in the state constitutional convention 1846 (again 1867); U. S. minister to Holland 1857, June 1—1861, June 8; in state senate six successive terms; was one of the founders of the new L. I. Hist. Soc. and of the Brooklyn city library, and pres. of the E. River Bridge company. He collected a valuable library; was translator and editor of De Vries's *Voyage from Holland to America* 1632–44; *Broad Advice to the United Netherland Provinces* 1649; *Representation from New-Nether-Land* 1650; *Journal of a Voyage to New York and a Tour in Several of the American Colonies* 1679–80 (by Jasper Dankers and Peter Sluyter, of Wieverd, Friesland); and author of several works, among which were: *The Voyage of Verrazano; Memoir of Hermann Ernst Ludewig;* and *Anthology of the New Netherlands, or Translations from the Early Dutch Poets of New York, with Memoirs of their Lives.*

MUR'PHY, JOHN FRANCIS: landscape painter; b. 1853, Dec. 11, Oswego, N. Y. He went to New York 1875, entirely self-taught in art; exhibited at the National Acad. 1876; became member of the Society of American Artists; was elected 1885 associate of the National Acad., and full member 1887; took 2d Hallgarten prize 1885, for his *Tints of a Vanished Past;* and the Webb prize, Soc. of Amer. Artists, 1887. He has a studio in New York, works in oil, and is member of the Water-Color Soc. Among his works are: *Sunny Slopes*, 1879; *Upland Cornfield*, 1880; *Late Afternoon*, 1881; *Indian Summer*, 1886.

MURRAIN, n. *mŭr′rān* [Sp. *morriña*, a disease among cattle: OF. *morine*, the carcass of a dead beast: Icel. *morn*, murrain: Gr. *marainō*, I destroy]: an infectious and fatal disease among cattle: ADJ. infected with murrain: INT. used as an imprecation, as, 'murrain take thee!' *Note.*—A term formerly applied to many forms of cattle-plague; now restricted to the APHTHA EPIZOOTICA, *ăf′thă ĕp′ĭ-zō-ŏt′ĭk-ă*, or epizootic aphthæ, commonly known as the foot and mouth disease.

MUR′RAIN: generic term loosely used to designate a variety of diseases of domestic animals; but now more correctly restricted to the vesicular epizootic (*Aphtha Epizootica*), popularly known as the foot and mouth disease. It is a contagious eruptive fever, affecting cattle, sheep, pigs, and poultry; but rarely communicable to horses or men. It is characterized by the appearance of little bladders or vesicles in the mouth, on the lips, gums, and tongue; on the udder, and in the interdigital space; causing inability to eat, and drivelling of saliva, heat and swelling of the udder, and lameness. The disorder runs a fixed and definite course usually in eight or ten days. Good nursing, comfortable lodgings and a liberal supply of soft, easily digestible food, are the chief requisites for speedy recovery. A laxative may be given if needed. The mouth may be washed out twice daily with a mild astringent solution, which may be made with half an ounce of alum, oxide of zinc, or sugar of lead, to the quart of water. The udder in milch cows, in which the complaint is usually most serious, should be bathed with tepid water before and after milking, which must be attended to very regularly; and the feet kept clean, and washed occasionally with the lotion used for the mouth. See CATTLE PLAGUE (*Aphthous Fever*).

MURRAY, *mĕr′ĭ*, ALEXANDER: 1755–1821, Oct. 6; b. Chestertown, Md.: U. S. naval officer. He went to sea at an early age, and had command of a vessel at the age of 18; was commissioned lieut. in revolutionary navy 1776; for lack of a vessel served as soldier in battles of White Plains and Flatbush, and was promoted capt.; was put in command of a privateer at the close of 1777; was captured and exchanged; volunteered as lieut. on frigate *Trumbull*, and was taken prisoner after sharp fight and severe wounding, off the capes of Delaware; on exchange and recovery took service as 1st lieut. on frigate *Alliance*, and at end of the war had been in 13 engagements (sea and shore). At organization of the Amer. navy 1798 he was commissioned capt., and had command of the 20-gun corvette *Montezuma*, and later of the frigates *Insurgent* and *Constellation*. He served in the W. Indies, and 1820 with a squadron in the Mediterranean, where his own ship alone fought and drove 17 Tripolitan gun-boats. His last post was the command of the navy-yard at Philadelphia, until his death, when he ranked as the senior officer of the navy.

MUR'RAY, ALEXANDER: U. S. naval officer: 1816, Jan. 2—1884, Nov. 10; b. Philadelphia; son of Alexander M. (1755–1821). He entered the navy 1835, Aug. 22; became passed midshipman 1841; lieut. 1847; commander 1862; capt. 1866; commodore 1871; rear-admiral 1876, Apr. 26; retired 1878, Apr. 30. He served in the Mexican war 1846–7, on the e. coast of Mexico, taking part in the capture of Alvarado, Tampico, Tobasco, Tuspan, and Vera Cruz, and being wounded at the first. In command of the steamer *Louisiana*, 1861–2, he defeated the *Yorktown* off Newport News, fought the battle of Roanoke Island, and destroyed the Confederate fleet under Lynch. He had charge of the naval forces at Kingston, N. C., and the expedition up York and Pamunkey rivers, destroying 27 vessels, 1862, May. He served in the N. Car. sounds 1863, did special duty 1866–7, was light-house inspector 1873–76; and after retirement was on the naval board.

MUR'RAY, DAVID, PH.D., LL.D.: educator: b. 1829, Oct. 15, Delhi, N. Y., of Scotch parentage. He graduated at Union Coll. 1852; was tutor 1853, then prof. of mathematics, and 1857–63 principal of Albany Acad.; prof. of mathematics and astronomy at Rutgers Coll. 1863–73; supt. of education at Tokio for the Japanese govt. 1873–79, establishing for Japan an educational system; represented Japanese educational interests at the Philadelphia centennial 1876; and from his return home became sec. of the board of regents of the Univ. of N. Y. in Albany. He published (1869), *Manual of Land Surveying*, contributed (1872) to Mori's *Education in Japan*, and edited (1876) *Outline History of Japanese Education*.

MUR'RAY, JOHN: clergyman: 1741, Dec. 10—1815, Sep. 3; b. Alton, Hampshire, Eng. He was resident in Ireland 1751–60; was converted to Methodism under Whitefield and the Wesleys, and was an occasional preacher; returned to England 1760. He adopted doctrines taught as Universalism (in salvation) by James Relly, and was excommunicated from Whitefield's tabernacle, London; came to America 1770; and Sep. 30, at Good Luck, N. J., began preaching the Universalist doctrine. This doctrine had been preached in America by the Rev. George de Benneville, as early as 1741; by an Episc. clergyman, of Charlestown, S. C., and in 1762 by the celebrated Dr. Jonathan Mayhew, pastor of the West Church, Boston, 1747–66, whose rationalism caused his exclusion from the Boston assoc. of Congl. ministers; but it was from the preaching of M. that the doctrine became the foundation and rule of a body of churches. He preached at Newport, R. I., Boston, Mass., Portsmouth, N. H., and other places in New England, meeting much opposition, and at times in peril of popular violence. He settled in the latter part of 1774 at Gloucester, Mass., and the usual prejudice took the form of suspicion that he was an English spy. A vote of the town authorities to send him away was secured, but its

execution was prevented by the influence of his friends. He served as chaplain to the Rhode Island troops before Boston, 1775, and was initiated into American patriotism by his intimacy with such officers as Greene and Varnum, who used their influence on his behalf with Washington when the other chaplains sought his removal. Illness, however, caused him to leave the service, and return to Gloucester, where he founded the first Universalist congregation in America 1780. In 1783 he carried to a successful issue a suit to recover property which the first parish of Gloucester had appropriated under the plea that the Universalists had no standing in law. His activity in the making of the denomination, caused him to be styled the 'father of Universalism.' He made a visit to England 1788, and 1793 became pastor of a Univ. church in Boston, of which he had charge until his death. The definite creed of M. was that Christ's atonement had literally taken away the sin of the whole human race. He thus made an alteration in the evangelical creed, rather than substituted for it the rationalism of Mayhew. He held to the Trinitarian doctrine, and to the existence of a personal Devil; and his view of salvation was qualified by the interposition of a scheme of redemption carried out in the future by degrees of punishment before the salvation would be effected.

MUR'RAY, JOHN: name of three generations of English publishers, associated with the palmiest days of English literature in the 18th and 19th c.

JOHN M'MURRAY, founder of the house (abt. 1745–1793, Nov. 16; b. Edinburgh), obtained a commission in the Royal Marines 1762, and 1768 was still second-lieut., when, disgusted with the slowness of promotion, and seeking a more active career, he purchaser the bookselling business of Mr. Sandby, opposite St. Dunstan's Church, London; and, dropping the Scottish prefix, became a bookseller and publisher at '32 Fleet Street.' He brought out the *English Review*, and published the elder Disraeli's *Curiosities of Literature*, etc. He was succeeded in due time by his son of the same name.

JOHN MURRAY, (1778–1843, son of John M.), was a minor at his father's death. Succeeding to the business, he made one of his earliest hits with Mrs. Rundell's Cookery-book, which proved to be a mine of wealth—more productive, perhaps, than *Childe Harold* itself. He became connected with Thomas Campbell and Sir Walter Scott; and 1808–9, projected the *Quarterly Review*, a Tory organ, in opposition to the Whig *Edinburgh Review*, then in the height of its influence. The first number of the Quarterly was published 1809, Feb. 1, under the editorship of William Gifford. The new periodical was completely successful, and brought M. into communication not only with the chief literati, but also with the Conservative statesmen of the time. A still more fortunate arrangement was that with Lord Byron, whose *Childe Harold* was published by M. 1812. M. then removed from Fleet street to Albemarle street, where the busi-

ness is still carried on. Here Byron and Scott first met, and here Southey made the acquaintance of Crabbe. Almost all the literary magnates of the day were 'four o'clock visitors' in Albemarle street. Byron's pleasant verse has described the scene:

> 'The room's so full of wits and bards,
> Crabbes, Campbells, Crokers, Freres, and Wards.'

M.'s dinner-parties included politicians and statesmen, as well as authors, artists, and dilettanti. He paid Byron nearly £20,000 for his works; and his dealings with Crabbe, Moore, Campbell, and Irving were princely. M. was succeeded by his son of the same name.

JOHN MURRAY (b. 1808, son of John M.) was educated first at the Charter House, afterward at Edinburgh Univ. The age of Byron had gone by, when, 1843, he succeeded to the business of his father and grandfather. A more practical and realistic age had succeeded, and the 'Home and Colonial Library,' issued to contest European and American cheap reprints of English books, was the precursor of the cheap railway and other literature of the present day. A lively and vigorous competition, arising out of the wants of a new era, has somewhat altered the relation of the great publishing houses. That of Albemarle street no longer ranks first in extent and variety of transactions; but many of the greatest works in history, biography, travel, art, and science have issued from the Albemarle street press under the régime of the third Murray. Among his later successes are Dr. Livingstone's *Travels* and *Last Journals*, Smiles's *Life of George Stephenson*, and Darwin's *Origin of Species by Natural Selection*. His handbooks of continental European travel have lately been supplemented by handbooks of English counties; and these, it is understood, owe much to the superintendence of the present head of the famous house.

MURRAY, LINDLEY: grammarian; 1745–1826, Feb. 16; b. Swatara, Lancaster co., Penn. He was educated at an acad. of the Society of Friends, and, on his father's removal to New York, was placed in a counting-house, from which he left to attend school in N. J. He then studied law, and was admitted to the bar at the age of 21, and commenced a good practice. During the revolutionary war, he engaged in mercantile pursuits, and accumulated wealth. His health failing, he went to England and purchased the estate of Holdgate, near York, where he applied himself to literary pursuits. In 1787. he published *Power of Religion on the Mind*, which passed through 17 editions. His *Grammar of the English Language* was issued 1795, and was followed by *English Exercises*, the *Key*, the *English Reader*, *Introduction and Sequel*, and a *Spelling Book*. There can be no stronger indication how entirely the systematic study of the English language was—until recent years—neglected by scholars, than the fact that M.'s Grammar was for half a century the standard text-book throughout Britain and America. M. wrote an autobiography to the year 1809, published after his death.

MURRAY (or MORAY), JAMES STEWART, Earl of; sometimes called the 'Good Regent,' Regent of Scotland: 1533–1570, Jan. 21 (regent 1567–70); illegitimate son of James V. of Scotland, by Margaret, daughter of John, fourth Lord Erskine, afterward wife of Sir Robert Douglas of Lochleven. He was made commendator of the priory of St. Andrews 1538, and subsequently of the priory of Mâcon (in France). He joined the Reformers 1556, and almost immediately became the chief of the Prot. party in Scotland. In 1561, he was sent to France, to invite Queen Mary to return to her kingdom; and on her arrival, he became her prime minister and adviser. 1562, Feb., he was created Earl of Mar; but that earldom having been claimed by Lord Erskine, the title of Earl of Moray was conferred on him instead, a few months afterward. Strongly opposed to the marriage of Mary with Lord Darnley, 1565, July 29, he endeavored to oppose it by an appeal to arms; but he was easily put to flight by the queen, and took refuge in England. He did not return to Edinburgh till 1566, Mar. 10, the day after the assassination of Riccio, in which he was an accomplice. 1567, Apr., he went to France, but was recalled in Aug. by the lords in arms against the queen, when he found Mary a prisoner in Lochleven, and himself appointed regent of the kingdom. After the escape of the queen, he defeated her forces, 1568, May 13, at Langside, near Glasgow, and was afterward one of the commissioners sent to England to conduct the negotiations against her. By his prompt and vigorous measures, zeal, and prudence, he succeeded in securing the peace of the kingdom, and settling the affairs of the church, but was assassinated at Linlithgow by Hamilton of Bothwellhaugh, one of the partisans of the queen.

MURRAY, NICHOLAS, D.D.: 1802, Dec. 25—1861, Feb. 4; b. Ireland. He came to America 1818; became a convert to Protestantism, graduated 1826 from Williams college, and 1829 Princeton Theol. Seminary. He was ordained a Presb. minister, and served as pastor in Wilkesbarre and Kingston, Penn., and Elizabethtown, N. J. He served the church in many other capacities, as moderator of the general assembly 1850; trustee of Princeton Seminary and Williams College—from the latter receiving the degree D.D. 1843. The controversy that he waged in the *New York Observer* with Abp. Hughes of the Rom. Cath. Chh. 1847, aroused much attention, as did his lectures against that church in this country, and in Ireland, which he visited 1851 and 60. He published a number of vols. historical, biographical, polemical, and devotional. He died at Elizabethtown, N. J.

MURRAY RIVER: principal river of S. Australia, rising in the Australian Alps, flowing into S. Australia, then s. into lake Alexandrina; thence to the ocean at Encounter Bay, 35° 35′ s. lat., 138° 55′ e. long.; tot. length 1,120 m., average breadth in summer 240 ft., average depth 16 ft., draining abt. 270,000 sq. m. Its narrow mouth is scarcely accessible to ships. See AUSTRALIA.

MURRAY, ROBERT, M. D.: army surgeon: b. Howard co., Md., 1822, Aug. 6. He graduated at Jefferson Med. Coll. 1845; appointed assistant surgeon U. S. army 1846; obtained rank of capt. 1851; major and surgeon 1860, and served through the civil war; obtained the brevets of lieut.col. and col. 1865, for meritorious service; made lieut.col. and medical purveyor 1866; col. and surgeon 1876; brig.gen. and surgeon-gen. 1883; and retired 1886.

MURRAY, WILLIAM: see MANSFIELD, WILLIAM MURRAY, Earl of.

MURRAY, WILLIAM HENRY HARRISON: author: b. 1840, Apr. 26, Guilford, Conn. He graduated at Yale 1862; was licensed to preach 1863: settled as pastor of the First Church (Congl.), Greenwich, 1864–68; and in Meriden, Conn.; at Park Street Church (Congl.), Boston, 1868–73; was widely popular as a strikingly original preacher. He gave Sunday evening free discourses in Boston Music Hall 1869–73; was in great demand as a lecturer; had considerable note for his interest in the matters represented by his books, *Camp Life in the Adirondack Mountains* (1868), and *The Perfect Horse* (1873). He resigned his Park street pastorate 1874, and for a time conducted an independent movement, on the suspension of which he applied himself to business, lecturing, and authorship, entirely apart from his earlier religious and ministerial associations. He has published *Music Hall Sermons* (1870–73); *Words Fitly Spoken* (1873); *Sermons from Park Street Pulpit* (1874); *Adirondack Tales*, 6 vols. (1877); *How Deacon Tubman and Parson Whitney Kept New Year, and Other Stories* (1887); and *The Story of Mamelons*, and *Daylight Land* (1888).

MURRE, n. *mĕr:* a sea-bird, the little auk.

MURREY, a. *mŭr′rĭ* [OF. *morée;* Sp. *morado*, mulberry-colored—from L. *morum*, a mulberry]: of a dark-red color; mulberry-colored.

MURRHINE, n. *mŭr′rĭn* [L. *murrhĭnus*, belonging to the stone murrha—from *murrha*, a stone of which costly vessels are made]: among the *ancients*, a name applied to a delicate sort of ware of great value and beauty.

MURRION, n. *mŭr′rĭ-ŏn*: see MORION.

MURSHIDABAD, *môr-shĭ-dâ-bâd′:* town of India, cap. of the British dist. of M. in Bengal proper; on the left bank of the Bhagratti, a branch of the Ganges, about 124 m. n. of Calcutta. On the opposite side of the river stands Mahinagar, usually reckoned a part of M. The town occupies a great space, several m. in length and breadth, but the buildings are mostly of mud. It contains two palaces: one old and gloomy; the other, constructed after the European style, and of great beauty, was completed 1840. Situated on the most frequented route by water from Calcutta to the N. W. Provinces, the trade of M. is important. Formerly, it was cap. of Bengal, and so wealthy that Clive compared it with London. Pop. (1881) a little under 50,000, of whom about 60 per cent. are Hindus, and 40 per cent. Mohammedans.

MURTHER, n. *mėr'ṭhėr:* an old spelling of MURDER which see.

MURVIEDRO, *môr-vē-ā'drō:* small town of Spain, province of Valencia, 18 m, n.n.e. of the city of Valencia, on the left bank of the Palancia, two m. from its mouth. It stands on the site of the anc. Saguntum (q.v.). Pop. about 5,000.

MURZA, n. *mėr'ẓă* [Pers. *mīrzā*, prince; Ar. *mir*, chief, leader]: second grade of Tartar nobility.

MURZUK': see FEZZAN.

MUSACEÆ, *mū-sā'sē-ē:* natural order of endogenous plants, largest of herbaceous plants, generally destitute or almost destitute of true stems, yet resembling trees in appearance, and sometimes rivalling palms in stateliness; the long sheathing bases of the leaf-stalks combining to form a false stem. The blade of the leaf has many fine parallel veins proceeding from the mid-rib to the margin. The flowers are congregated on spadices protected by spathes. The fruit is either a 3-valved capsule or fleshy.—The species are not numerous; they are natives of warm climates, in which they are widely distributed, and are of great value to the inhabitants of tropical countries; the fruit of some, particularly of the genus *Musa*, being much used for food, while the fibres of the leaves are employed for cordage and for textile purposes. See PLANTAIN: BANANA: ABACA. A very interesting plant of the order M. is the TRAVELLER'S TREE (q.v.) of Madagascar.

MUSÆUS, *mū-sē'ŭs:* one of the anc. Greek poets of the mythic period, an almost fabulous personage, said to have been son of Eumolpus and Selene; according to others, son and pupil of Orpheus. To him was ascribed the introduction of the Eleusinian and other mysteries into Greece, and the ordering of many religious rites. He was among the ancients also the reputed author of a number of poems, oracles, purificatory verses, a war of the Titans, a theogony, hymns, etc.; but of the few verses which remain the authenticity is very doubtful, as is indeed his individuality itself.—A later MUSÆUS, who lived probably in the 5th c. of the Christian era, was author of a very pleasing amatory poem, in Greek, *Hero and Leander*, discovered in the 13th c., of which the first ed. was published by Aldus Manutius about 1494, and of which there have been many subsequent editions.

MUSÆUS, *mô-zā'ûs*, JOHANN KARL AUGUST: German writer: 1737–1787, Oct. 28; b. Jena, where he studied theology. He was nominated to a country church, but prevented from entering upon the cure committed to him by the opposition of the peasantry of the parish, who refused to receive him on the ground that he had been once seen to dance. In 1763, he received the appointment of tutor to the pages at the ducal court, and 1770 he became prof. at the Weimar Gymnasium. His first literary production, 1760, was a parody of Richardson's *Sir Charles Grandison*, which was at that time extrava-

gantly admired in Germany. The success of this satirical squib was complete; but as literary fame brought little pecuniary reward, M. was compelled to gain his living by other means than writing; and an interval of more than 18 years elapsed before he found leisure to reappear as an author. In 1778, he published *Physiognomischen Reisen*, a good-natured yet striking satire on the absurd uses to which the Germans had turned Lavater's system. This, like his previous work, was pre-eminently successful; and he was encouraged to lay aside his incognito, and continued his authorship. In 1782, appeared his charming version of German folk-lore, *Volksmärchen der Deutschen*, which, professing to be merely a collection of popular tales noted down from the lips of illiterate old country people, was tinctured with such genial humor, quaint fancy, and strong sense, that they have become a classical popular work of their kind. His satirical sketches, *Freund Heins Erscheinungen in Holbein's Manier* (Winterthur 1785), maintained his reputation. His posthumous writings were edited 1791 by his relative and pupil, A. V. Kotzebue. M.'s style was correct, elegant, and flexible.

MUSCADEL, n. *mŭs'kă-dĕl*, or MUS'CADINE, n. *-dĭn* [see MUSCATEL]: a rich grape—known in the extreme Southern States as the Bullitt grape—also the wine made from it: a fine kind of pear. Also ADJ.

MUSCÆ VOLITANTES, *mŭs'sē vŏ-lĭ-tăn' tēz*, [L. flitting flies]: ocular spectra, which appear like flies on the wing, or floating black spots before the eyes. There are two kinds of M. V.—one perfectly harmless while the other is symptomatic of one of the most serious diseases of the eyes, viz., amaurosis.

Whoever will look through a minute pin-hole in a card at the clear sky may see floating before his sight a number of translucent tubes or fibres, and many little beads, of which some are separate, some attached to the tubes, and some apparently within them. Some of the tubes or fibres are straight, others looped or twisted, others forked. All these objects are bright in the middle, and bounded by fine black lines, beyond and parallel to which may be seen an appearance of colored lines or fringes. The doublings and crossings of the loops or knots in the twisted fibres appear as black points. Though the eye be fixed, these bodies change their position with greater or less rapidity. Now, in ordinary light and vision all these objects are imperceptible, unless the knots or fibres happen to be larger than usual, when they constitute the harmless kind of muscæ volitantes. The black lines and fringes are phenomena of the inflexion or Diffraction (q.v.) of light, which are never seen except in divergent rays, and all M. V. having such fringes must be situated at a greater or less distance from the retina; and there are conclusive reasons for believing that they occupy the vitreous humor, and cannot therefore portend amaurosis; whereas those black

spots which have no fringes, and which do not move, or which move only with the motions of the eye, are points in the retina which are insensible to light, and are therefore symptomatic of danger to vision. To decide, then, whether the M. V. are or are not indicative of danger, the patient should fix his eye on a white surface (as a sheet of letter-paper) after a sudden shake of the head; if they sink gently downward, they are innocent. It should be added, that though they seem to descend they must in reality be ascending; floating up in the vitreous humor as far as the cellular partitions formed by the hyaloid membrane will permit. See EYE. For further information on the differences between the innocent and the dangerous forms of M. V., see an article by Sir David Brewster, *North British Review*, 1856, Nov.

MUSCARDIN, n. *mŭs'kâr-dĭn* [F. *muscardin:* It. *moscardino*]: the dormouse.

MUSCARDINE, n. *mŭs'kâr-dĭn* [F.], (*Botrytis Bassiana*): silk-worm rot; fungus (see BOTRYTIS) which grows on silk-worms, and often kills them in great numbers; named from fancied resemblance of the dead caterpillar to a little cake or a kind of pastille (see GATTINE.) The fungus consists of erect branching threads, with clusters of spores at the end of short lateral branches. The spores of this fungus germinate even on healthy silk-worms, and in circumstances otherwise most favorable

Muscardine (*Botrytis Bassiana*).

to health. They germinate also on the caterpillars of other lepidopterous insects. When this pest appears among silk-worms, its progress cannot be checked by any means known. For prevention, it is most important that the silk-worms be not overcrowded.

MUSCAT, n. *mŭs'kăt*: same as MUSCATEL, which see.

MUSCAT, *mŭs-kăt′* or correctly MASKÂT: independent Arab state, forming the sea-coast of Omân, e. Arabia. It extends from the Strait of Ormus to the island of Moseirah, and nowhere exceeds 150 m. in width. The coast and interior are both sterile, but the country is studded with very fertile oases. The cap. is Muscat.—The independence of Omân dates from 751, when the people elected a sovereign of their own. For 900 years the Imaums were elected for personal merit; afterward from members of a ruling family. M. was taken by Albuquerque 1507, and remained in the hands of the Portuguese till 1648, when the Arabs recovered possession. The Imaums afterward made extensive conquests in e. Africa, including Zanzibar, Mombas, Quiloa, etc. In 1798, they acquired possession of the coasts of Laristan and Mogistan, the islands of El Kishim and Ormus, and the town of Bender Abbas in Persia, paying to the Shah a rent or tribute of 6,000 tomans. The state was very prosperous under the wise and mild sway of Said Seid, the late Imaum. He ascended the throne 1803, at the age of 16, and reigned till his death 1856. He was long a faithful ally of England. In 1854, the Imaums were driven from their Persian dependencies, which in their opinion belonged to them in perpetuity, so long as they paid the rental. They recaptured Bender Abbas, but in consequence of English interference, they were compelled to conclude a treaty with Persia 1856, April. This is said to have broken the heart of the old Seid, who died 1856, Oct. 19. He appointed his son Majid to succeed him in Zanzibar, and his son Thuwany to succeed him in Muscat. The latter was murdered by his son Salim 1868, who reigned for a short time, but was driven out by his uncle, Sayed Tuky. In consequence of the unsettled state of affairs in M., Persia has assumed the govt. of Bender Abbas and the Persian coast territory. See ZANZIBAR WAHABIS.—See *History of the Imaums and Seyids of Omân*, by Sahibibn-Razik, from the Arabic, by Rev. G. P. Badger Markham's *History of Persia* (1874).

MUSCAT′, or correctly MASKAT: chief town in the state of M. and in the province of Orman, e. Arabia. It is on the Persian Gulf, a fortified town, surrounded with gardens and date-palms. It has a very good harbor, which, in winter, is reckoned the best refuge in the Indian Ocean; and is a most important centre of trade, where the productions of Europe, of Africa, and of the East are exchanged. The principal exports are Arabian coffee and pearls obtained from the Persian Gulf; but wheat, dates, raisins, salt, sulphur, drugs, and horses also are exported. The climate is not healthful, and summer heat is extreme. The town presents a decayed appearance; its streets are narrow and filthy, and its houses mean. The people are of mixed nationalities of Africa, Arabia, and India; but the government is well and justly administered. Pop. (1863) estimated 40,000; beside the pop. of Matrab, a suburb, 20,000–25,000.—See MUSCAT (State).

MUSCATEL, n. *mŭs'kă-tĕl*, also **MUS'CADEL**, n. *-dĕl*, and **MUS'CADINE**, n. *-dīn* [mid. L. *muscatellus*, the tree; *muscatellum*, the wine—from *musca*, a fly—so named from flies and bees being attracted by the fruit or its flowers; F. *muscadel*—from *mouche*, a fly: It. and Sp. *moscatello*—from *mosca*, a fly. Skeat gives derivation from O. It. *moscato*, perfumed with musk—O. It. *musco*, musk—fr. L. *muscus*, musk: see Latham]: a very rich grape, and the wine made from it; the grapes dried on the vine for fine table-rasins. Also, a rich pear. The name M. is given to many kinds of sweet and strong French and Italian wines, white or red; among the finest are the white Rivesalt and red Bagnol wines from Roussillon, and the Lunel from the Pyrenees, the Lacrymæ Christi and Carigliano of Naples, etc.

MUSCATINE, *mŭs-ka-tēn'*: city, cap. of Muscatine co., Io.; on the Mississippi river, and the Chicago Rock Island and Pacific, and the Burlington Cedar Rapids and Northern railroads; 30 m. s. by w. of Davenport, 220 m. w.s.w. of Chicago. It is on the rocky bluffs at the great bend of the river, and commands a large trade. It had (1890, Mar.) 1 national bank (cap. $50,000), 1 state bank (cap. $30,000), 2 private banks, 16 churches, several excellent public schools, public library, city water-works (cost $100,000), deriving its supply from the Mississippi river, street railroad, gas and electric light plants, telegraph and telephone service, stone and iron railroad, wagon, and foot bridge across the Mississippi (expected to be completed 1890, July 1, at a cost of $150,000), and 4 daily and weekly periodicals. Muscatine Island, on which the s. part of the city is built, its famous for its early and profuse production of water-melons and sweet potatoes, having 3,500 acres in melons and more than 1,000 in potatoes 1889. M. has a large lumber, agricultural, and pork-packing trade. Pop. (1870) 6,718; (1880) 8,295; (1890) 12,350.

MUSCHEL-KALK, *mûsh'ĕl-kâlk* [Ger. *muschel*, shell; *kalk*, lime]: middle member of the Triassic, or New Red Sandstone period, the beds of which are entirely absent from the British strata. Being typically developed in Germany, the German name has been universally adopted to designate them. They consist of (1st) a series of compact, grayish, regularly-bedded limestone, more than 300 ft. thick; (2d) alternations of limestone, dolomite, marl, gypsum, and rock-salt, nearly 300 ft. thick. The limestone abounds in the remains of Mollusca. The paleozoic Goniatites are replaced by the Ceratites, a remarkable link between them and the Secondary Ammonites. Ceratites are distinguished by the few small denticulations of the inner lobes of the suture. The heads and stems of Lily encrinites (*Encrinus*) also are abundant in these strata. and the remains of ganoid fish have been found.

MUS'CI; see **MOSSES**.

MUSCICAPIDÆ, *mŭs-ĭ-kăp'ĭ-dē :* family of birds of order *Insessores* and tribe *Dentirostres*, of which the greater number receive the popular name Fly-catcher (q.v.). The limits of the family are very variously defined by different ornithologists. The M. are inhabitants mostly of the warmer parts of the world, in which they are very widely diffused. The species are very numerous.

MUSCIDÆ, *mŭs'ĭ-dē :* family of dipterous insects, having a short, thick, membranous proboscis, geniculated at the base, entirely retractile so as to be concealed within the mouth, and terminated by two large lobes (see HOUSE-FLY), the antennæ three-jointed; the thorax with a transverse suture. The species are very numerous, and universally distributed. The well-known House-fly, Blow-fly, etc., are specimens. The larvæ are Maggots (q.v.). Although some of the M. are troublesome, none of them are so much so as species of some allied families.

MUSCITES, n. plu. *mŭs'sīt̄z* [L. *muscus*, moss] : a general term for fossil plants of the moss family. MUSCOSITY, n. *mŭs-kŏs'ĭ-tĭ*, mossiness.

MUSCLE, n. *mŭs'l* [F. *muscle;* Norm. F. *moucle;* prov. F. *mouscle*—from L. *mus'cŭlus*, a little mouse, a muscle of the body, a shell-fish: Gr. *mus*, used in the same sense: Ger. *muschel*, muscle: It. *muscolo*]: one of the organs of motion in the body—the muscles form the red fleshy portions of land animals (see below): a shell-fish—but this now generally spelt MUSSEL, which see. MUSCLED, a. *mŭs'ld*, having large muscles. MUSCULAR, a. *mŭs'kū-lêr*, pert. to muscle; full of muscles; performed by or dependent on muscles; strong; brawny; vigorous. MUS'CULARLY, ad. *-li*. MUS'CULAR'ITY, n. *-lăr'i-ti*, the state of being muscular. MUSCULAR CHRISTIANITY, that view of religion and its practical application which fits the individual to encounter unflinchingly the great battles of life, as distinguished from mere profession and sentimentalism: sometimes *familiarly*, the endeavor to force on others one's own beliefs against the true spirit of Christianity: also *familiarly*, due and proper development of bodily strength considered as an aid to mental and moral activity.

MUS'CLE—MUSCULAR TISSUE: one of the instruments by which all sensible movements of the animal body are performed:—substance of which these instruments are formed, distinguished specially by its contractile power. When examined under high magnifying power, the fibres of muscular tissue are found under two forms, distinguished from each other by the presence or absence of very close and minute transverse bars or stripes. The fibres of the *voluntary* muscles—muscles whose movements can be influenced by the will—as well as the fibres of the heart, are *striped;* while those of the *involuntary* muscles—the muscular structures over which the will has no control—e.g., the muscular fibres of the intestinal canal, the uterus, and the bladder, are *unstriped.*

Examining an ordinary voluntary muscle with the naked eye (e.g., a muscle from one of the extremities of any animal), we observe that it presents a fibrous appearance, and that the fibres are arranged with great regularity in the direction in which the muscle is to act or contract (for it is by their inherent power of contracting that muscles act). Closer examination shows these fibres arranged in *fasciculi*, or bundles of various sizes, inclosed in sheaths of areolar tissue, by which they are at the same time connected with and isolated from those adjoining them; and, when the smallest *fasciculus*, visible to the naked eye, is examined with the microscope, it is seen to consist of a number of cylindrical fibres lying in a parallel direction, and closely bound together. These *primitive* (or, as some writers term them, the *ultimate*) fibres present two sets of markings or *striæ*—viz., a longitudinal and a transverse set. The fibres, when separated from each other, frequently split longitudinally into *fibrillæ*, as is seen at one of the ends of fig. 1. Sometimes, however, when a fibre is extended, it separates in the direction of the transverse striæ into a series of disks, as in fig. 2.

Either cleavage is equally natural, but the latter is the least common. Hence, observes Bowman, who has specially investigated the minute structure of voluntary

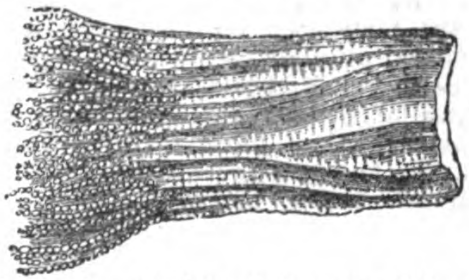


Fig. 1.—A Fasciculus of Striped Muscular Fibres, showing longitudinal cleavage: Magnified 300 diameters.

muscles, 'it is as proper to say that the fibre is a pile of disks as that it is a bundle of fibrillæ; but, in fact, it is neither the one nor the other, but a mass in whose structure there is an intimation of the existence of both, and a tendency to cleave in the two directions. If there were a general disintegration along all the lines in both

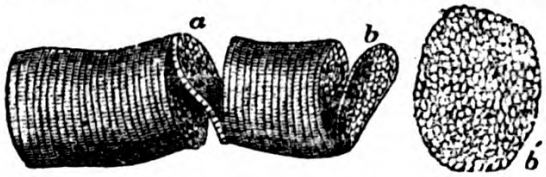


Fig. 2.—A Fasciculus, similarly magnified, showing transverse cleavage:
The longitudinal lines are scarcely visible:
a and *b*, disks nearly detached; b', a detached disk, more highly magnified, showing the sarcous elements.

directions, there would result a series of particles, which may be termed *primitive particles* or *sarcous elements*, the union of which constitutes the mass of the fibre. These elementary particles are arranged and united together in the two directions, and the resulting disks, as well as fibrillæ, are equal to one another in size, and contain an equal number of particles. The same particles compose both. To detach an entire fibrilla is to abstract a par-

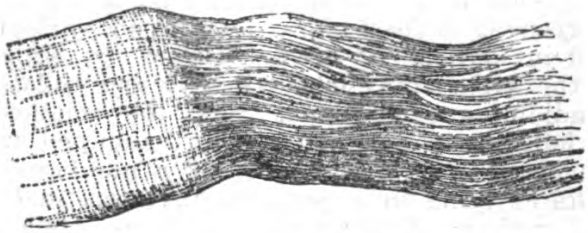


Fig. 2 (*bis*).—Attachment of Tendon to Muscular Fibre in the Skate.

ticle of every disk, and *vice versâ*. The fibres are supplied with vessels and nerves which lie in the intervals be-

tween them, and are attached by their extremities through the medium of tendon or aponeurosis to the parts which they are intended to move. Aggregated in parallel series, of greater or lesser size, and associated with nerves, vessels, tendinous structures, etc., they form the various MUSCLES, which are mostly solid and elongated, but sometimes expanded (as in the diaphragm) into a membranous shape. The length of the fibres is usually about that of the muscle in which they occur, and may vary from two ft. or more (in the sartorious muscle) to less than two lines (in the stapedius muscle in the middle ear); while their width varies from $\frac{1}{60}$ to $\frac{1}{1500}$ of an inch; being largest in crustaceans, fishes, and reptiles, where their irritability, or property of contracting under the action of a stimulus, is most enduring; and smallest in birds where it is most evanescent. Their average width in man is about $\frac{1}{400}$ of an inch, being about $\frac{1}{352}$ of an inch in the male and $\frac{1}{454}$ of an inch in the female. The average distance beween the striæ, or the size of the sarcous elements, in the human subject is $\frac{1}{9400}$ of an inch, the extremes being $\frac{1}{15000}$ and $\frac{1}{6000}$ of an inch, according to the contraction or relaxation of the fibre. The form of the fibres is polygonal, their sides being flattened against those of the adjoining fibres. Each fibre is inclosed in a transparent, very delicate, but tough and elastic tubular sheath, which cannot always be readily seen, but is distinctly shown stretching between the separated fragments of a fibre which has been broken within it, for its toughness will often resist a force be-

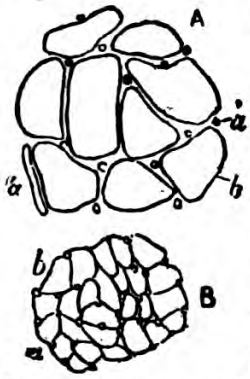


Fig. 3. — Tranverse Sections of Striped Muscle that had been injected and dried:
Magnified 70 diameters.
A, from the frog; B, from the dog; *a*, *a*, sections of the injected capillaries, showing the position they occupy among the fibres; *a'*, a capillary seen longitudinally; *b*, *b*, section of elementary fibres, showing their angular form and various size. These figures show that the vascularity is greatest when the elementary fibres are smallest.

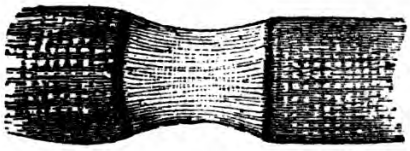


Fig. 4.—Muscular Fibre broken across:
Showing the untorn sarcolemma uniting the fragments.

fore which its brittle contents give way. This tubular sheath is known as the *sarcolemma* or *myolemma*—the former term being derived from Gr. *sarx*, flesh, and *lemma*, skin or husk; and the latter, from Gr. *mūs*, muscle, and *lemma*.

It wasfor a long time believed that the contraction of a muscle was associated with a change in the direction of each fibre from a straight line to a sinuous or zigzag course. The investigations of Bowman have, however, shown this view erroneous. He has proved that in a state of contraction there is an approximation of the transverse striæ, and a general shortening with a simultaneous thickening of the fibre, but that it is never

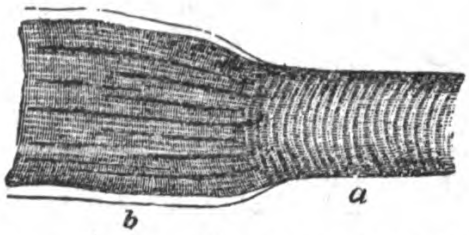


Fig. 5.—Fragment of an Elementary Fibre (from the Eel) partially contracted in water:
Magnified 300 diameters.

a, uncontracted part; *b*, contracted part, along the border of which the sarcolemma is raised from the surface by the water that has been absorbed, that has thereby caused the contraction, and by it has been expelled from the contractile mass.

thrown out of the straight line, except when it has ceased to contract, and its extremities are acted on by the contraction of adjacent fibres.

Muscles grow by an increase, not of the number, but of the bulk of their elementary fibres; and Bowman believes 'that the number of fibres remains through life as it was in the fœtus, and that the spare or muscular build of the individual is determined by the mould in which his body was originally cast.'

The structure of the *involuntary* or *unstriped* muscles must now be considered. This form of muscular tissue occurs commonly in the shape of flattened bands of considerable length, but of a width not exceeding $\frac{1}{2000}$ or $\frac{1}{3000}$ of an inch. These bands are translucent, and sometimes slightly granular, and are usually marked at intervals by elongated nuclei, which become much more apparent on the addition of acetic acid. Kölliker has shown that every one of these bands or fibres is either a single elongated cell (a fibre-cell) or is a fasciculus of such cells. These fibres have not usually fixed points of attachment like the striated fibres, but form continuous investments around cavities within the body—such as the intestinal canal, the bladder, the uterus, the blood-vessels, etc.—or are dispersed through the substance of tissues, such as the skin, to which they impart a contractile property.

For the chemical composition of ordinary (or voluntary) muscle, see FLESH. It is to be added that the fibrillæ, or the sarcous elements of which they are composed, consist of a substance termed SYNTONINE (q.v.), which closely resembles the fibrine or coagulating constituent of the blood; and that the same syntonine is

also the main constituent of the unstriped muscles, or at all events of their fibre-cells. Like the blood-fibrine, it exists in a fluid form in the living tissue, and coagulates or solidifies only after death.

Fig. 6.—Fibres of Unstriped Muscle:
a, in their natural state; *b*, when treated with acetic acid, which reveals the exisence of corpuscles; *c*, corpuscles or nuclei detached. This and the preceding diagrams are copied from Bowman.

Not pausing to consider the arrangement and distribution of blood-vessels, nerves, and areolar-tissue in muscular structures, we pass to consider the muscles and their functions.

Muscles vary extremely in form. In the limbs they are usually of considerable length, surrounding the bones and forming an important protection to the joints; while in the trunk, they are flattened and broad, and contribute essentially to form the walls of the cavities which they inclose. There is unfortunately no definite rule regarding the nomenclature of muscles. Muscles derive their names (1) from their situation—e.g., the temporal, pectorals, gluteals, etc.; or (2) from their direction—e.g. the rectus, obliquus, etc., of which there may be several pairs—e.g., rectus femoris, rectus abdominalis, rectus capitis, etc.; or (3) from their uses—e.g., the masseter, the various flexors, extensors; or (4) from their shape—e.g., the deltoid, trapezius, rhomboid, etc.; or (5) from the number of their divisions—e.g. the biceps and triceps; or (6) from their points of attachment—e.g. the sterno-cleido-mastoid, the genio-hyo-glossus, the sterno-thyroid, etc. In the description of a muscle, its points of attachment are denoted by the words *origin* and *insertion;* the former applied to the more fixed point or that toward which the motion is directed, the latter to the more movable point. The application of these terms is, however, in many

cases arbitrary, as many muscles pull equally toward both attachments. Muscles opposed in action are termed *antag onists*, this antagonism being in most cases required by the necessity that exists for an active moving power in opposite directions. Thus, by one set of muscles, the *flexors*, the limbs are bent; while by a contrary set, the *extensors*, they are straightened. One set, termed the muscles of mastication, closes the jaws, while another set opens them; and probably every muscle in the body has its antagonists in one or more other muscles.

The skeleton, which may be termed the locomotive framework, may be regarded as a series of levers, of which the fulcrum is, for the most part, in a joint—viz., at one extremity of a bone—the resistance (or weight) at the further end, and the force (or muscle) in the intermediate portion. In most cases, in order to preserve the necessary form of the body, muscles are applied at a great mechanical disadvantage as regards the exercise of their power; that is to say, a much larger force is employed than would suffice, if differently applied, to overcome the resistance. The two main sources of this disadvantage lie in the obliquity of the insertion, and consequently of the action of most muscles, and in the muscles being usually inserted very near the fulcrum The first of these disadvantages is in many cases diminished by the enlargements of the bones at the joints. (See fig. 7, A.) The tendons (*i*) of the muscles (*m*) situated above the joint are usually inserted immediately below the bony enlargement, and thus reach the bone that is to be moved (*o*) in a direction somewhat approaching the perpendicular. If this enlargement did not exist (as in fig. 7, B), the contraction of the muscle instead of causing the lower bone to turn upon the upper one with comparatively little loss of power, would do little more than cause the two ends of the bones to press on each other. The second mechanical disadvantage is compensated for by gain in the extent and velocity of movement, and by avoidance of the great inconvenience of having the muscles extended in straight lines between the ends of jointed continuous levers. Thus the bones of the forearm (*b*,*c*) are bent upon the bone of the arm (*a*) by the biceps muscle (*d*), which arises close to the head of the latter, and is inserted at *e*, at a short distance from the elbow-joint, which acts as the fulcrum of the lever *c*. By this arrangement, a contraction of a single inch in the muscle moves the hand (*f*), in the same time, through the extent of about 12 inches, but then the hand moves through every inch with only about one-twelfth part of the power exerted by the M. By the junction of two or more levers in one direction, as in the different segments of the extremities, the extent and velocity of their united actions are communicated to

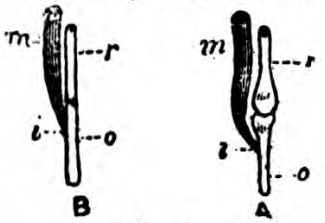


Fig. 7.

the extreme one. Thus a blow with the fist may be made to include the force of all the muscles engaged in extending the shoulder, elbow, and wrist.

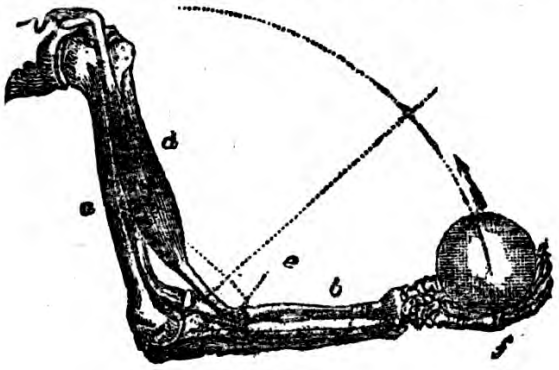


Fig. 8.

The great and characteristic property of muscular tissue—that of shortening itself in a particular direction when stimulated—is called *contractility*. The stimulus may be direct irritation by mechanical means, or by galvanism, or by some chemical substance, but in the living body the muscular fibres are, in most cases, made to contract by the immediate influence of the nerves distributed among them, which are consequently termed *motor* nerves (see NERVOUS SYSTEM), and are under the influence of the will. By an exertion of volition, we can contract more or fewer muscles at once, and to any degree, within certain limits; and, as a matter of fact, there is hardly any ordinary movement performed in which several muscles are not called into play. But every voluntary M. is subject also to other influences more powerful in their operation than the will. The movement of the features under the impulses of passion and emotion are more or less involuntary, as is shown by the very partial power that the will has of restraining them, and the extreme difficulty of imitating them.

Many movements ensue involuntarily when certain impressions, which need not necessarily be attended with consciousness, are made on the surface of the body, or on any part of its interior, either by external or internal causes. Such movements are termed *reflex*: see NERVOUS SYSTEM. For some of the important groups of muscles in the human body, see ARM: EYE: FOOT: HAND: LEG: ETC.

MUSCULAR FORCE—its Origin.—Until 1866, the universally accepted theory on this subject was that of Liebig. According to him, non-nitrogenous food is consumed entirely in the production of heat; while muscular energy is due to the waste of the nitrogenous muscular tissue, and therefore of nitrogenous food. Muscular exercise should, if this were the case, cause very distinct increase in the nitrogenous excretions of the body, as well as greater elimination of non-nitrogenous substances,

But the experiments of Fick and Wislicenus, during an ascent of the Faulhorn, led them to deny altogether the increase of excretion of nitrogen, and to come to the conclusion that the energy generated in the muscles is the result of the burning (oxidation) of non-nitrogenous substances (fats and carbo-hydrates), and not of the burning of the albuminous constituents of muscular tissue; and they conclude that the nitrogenous constituents of muscles are rather to be regarded as forming the machine in which these substances are burned, than as being themselves destroyed. (For a translation of their memoir, see *Phil. Mag.*, 1866, June, supplementary number.)

Dr. Frankland (*Phil. Mag.*, 1866, Sep.) arrives at the conclusion that the non-nitrogenous constituents of the food, such as starch, fat, etc., are the chief sources of the actual energy, which becomes partially transformed into muscular work. He does not, however, deny to the albuminous matters a co-operation in production of muscular power, but he regards their chief use as being to renew the muscular tissue. The muscles are thus the source both of animal heat and of muscular energy. Dr. Parkes, in a long and careful series of experiments (see *Proceedings of the Royal Soc.* XV. 339; XVI. 44; XIX. 349; XX. 402), examined the effect of exercise, both with a non-nitrogenous and with a nitrogenous diet. He found no marked increase, but often a diminution, of the nitrogenous substances excreted during exercise, though subsequently a slight increase took place. Dr. Pavy, in a series of elaborate experiments recorded in the *Lancet* (1876, Feb., Mar., Nov., Dec; 1877, Jan.), comes to a similar conclusion. He says: 'The theoretical deduction to be drawn from the investigation which has been conducted is that, although the elimination of urinary nitrogen is increased by muscular exercise, yet the increase is nothing nearly sufficient to give countenance to the proposition that the source of the power manifested in muscular action is due to the oxidation of muscular tissue.'

The theory of muscular action which Dr. Parkes proposes (see above) is as follows: During action, the muscles appropriate nitrogen; this act is accompanied by changes in the carbo-hydrates, which lead to the manifestation of mechanical force; these changes lead to effete products (lactic acid, etc.) in the muscles, which, as appears from Ranke's experiments, stop their contraction. Then ensues an action of oxygen upon the nitrogenous framework of the muscles, and a removal of the effete products of the carbo-hydrates, so that the muscle becomes again capable of appropriating nitrogen, and of acting. But, though some such theory as this finds favor with most physiologists, and agrees with most of the experiments on the subject, this form is not universally accepted.

Dr. A Flint, of New York, made observations on Weston, the pedestrian, which seemed to show that, in his case at least, the excretion of nitrogen is very distinctly

increased, both during and after severe muscular work. He accordingly comes to the conclusion that 'the exercise of muscular power immediately involves the destruction of a certain amount of muscular substance, of which the nitrogen excreted is a measure.' Thus, he adheres to the original view of Liebig. His experiments are described in *Journal of Anat. and Physiol.*, XI. 109; and his views are developed in the same journal, XII. 91, where also numerous references are given to other works and papers on the subject.

All observers are agreed that the amount of carbon excreted in the form of carbonic acid is very largely increased during exercise.

Besides the papers named above, the following may be consulted: Liebig, in *Pharmaceutical Journal and Transactions*, 1870; Voit, in *Zeitschrift für Biologie*, 1870; Foster, *Text-Book of Physiol.*, 323.

MUSCLE SHOALS: shallow expansion of the Tennessee river in n. Ala., where for abt. 25 m. the river descends 100 ft. through a succession of rapids, abt. 250 m. from its mouth. The name is from the great number of fresh-water mussels (or muscles) found there.

MUSCO'GEE (or MUSKO'GEE) INDIANS: see CREEKS.

MUSCOID, n. *mŭs'koyd* [L. *muscus*, moss; Gr. *eidos*, likeness]: moss-like: N. a moss-like plant.

MUSCOLOGY, n. *mŭs-kŏl'ŏ-jĭ* [L. *muscus*, moss; Gr. *logos*, discourse]: that part of botany which treats of the mosses.

MUSCOVADO, n. *mŭs-kō-vā'dō* [Sp. *mascabado*, a term applied to inferior sugar]: raw or unrefined sugar.

MUSCOVY, a. *mŭs'kŏ-vĭ*: of or from *Moscow*, in Russia (q.v.). MUSCOVITE, n. *mŭs'kŏ-vīt*, native or inhabitant of that small part of Russia which formerly alone constituted Russia. MUSCOVY-DUCK, a large species of duck (see MUSK DUCK). MUSCOVY-GLASS, or MUS'COVITE, *-vīt*, a variety of mica, semi-transparent, often found in masses, capable of being split into plates, and used as glass, occurring of various colors, abundant in granite, of which it forms one of the constituents: see MICA.

MUSCULAR: see under MUSCLE.

MUSE, n. *mūz* [F. *muse*—from L. *Musa*; Gr. *Mousa*, one of the nine goddesses of learning, poetry, and song in classic mythology (see MUSES, THE): It. *musa*]: the inspiration or power of song. MUSE'LESS, a. *-lĕs*, having no power of poetry; unpoetical. MUSES, n. plu. *mū'zĕz*, in *anc. myth.*, nine sister goddesses who presided over the liberal arts, the daughters of Zeus (Jupiter) and Mnemosyne (memory)—viz., CALLIOPE, *kăl-lī'ŏ-pē*, eloquence and heroic poetry; CLIO, *klī'ō*, history; ERATO, *ĕr'ă-tō*, lyric and love poetry; EUTERPE, *ū-tĕr'pē*, music; MELPOMENE, *mĕl-pŏm'ĕ-nē*, tragedy; POLYHYMNIA, *pŏl'ĭ-hĭm'-nĭ-ă*, singing and rhetoric; TERPSICHORE, *tĕrp-sĭk'ō-rē*, dancing; THALIA, *thă-lī'ă*, pastoral and comic poetry; URANIA, *ū-rān'ĭ-ă*, astronomy.

MUSE, v. *mūz* [F. *muser*, to muse, to dream; OF. *muse*, the mouth, the snout of an animal: It. *musare*, to muse, to surmise, to muzzle—from *muso*, a muzzle, a snout: Norw. *mussa*, to whisper, to mutter: L. *mussārĕ*, to buzz, to brood over: Gr. *muzein*, to murmur: Bret. *mouza*, to sulk: Swiss, *musen*, to mope: Dut. *muizen*, to ponder, to muse]: to ponder; to think closely; to study in silence; to think on; to be absent of mind; in *OE.*, to wonder; to be amazed. MU'SING, imp.: ADJ. meditative: N. act of one who muses; meditation; contemplation; *familiarly*, a brown-study. MUSED, pp. *mūzd*. MU'SER, n. *-zĕr*, one who is apt to be absent in mind. MUSE'FUL, a. *-fûl*, silently thoughtful. MUSE'FULLY, ad. *-lĭ*. MU'SINGLY, ad. *-lĭ*.—SYN. of 'muse': to meditate; ruminate; consider; reflect; study; think.

MUSES, *mūz'ĕz*, THE: in classic mythology, divinities originally included among the Nymphs, but afterward regarded as quite distinct from them. To the M. was ascribed the power of inspiring song, and poets and musicians were therefore regarded as their pupils and favorites. They were honored first among the Thracians; and as Pieria around Olympus was the original seat of that people, it came to be considered as the native country of the Muses, who were therefore called *Pierides*. In the earliest period their number was three, though Homer sometimes speaks of a single muse, and once, at least, alludes to nine. Nine is the number given by Hesiod in his *Theogony*, who also mentions their names—Clio (q.v.), Euterpe (q.v.), Thalia (q.v.), Melpomene (q.v.), Terpsichore (q.v.), Erato (q.v.), Polyhymnia (q.v.), Urania (q.v.), and Calliope (q.v.). Their origin is differently given, but the most widely spread account represented them as daughters of Zeus and Mnemosyne. Homer speaks of them as the goddesses of song, dwelling on the summit of Olympus. They are also often represented as companions of Apollo, and as singing while he played upon the lyre at the banquets of the Immortals. Various legends ascribed to them victories in musical competitions, particularly over the Sirens (q.v.). In the later classic times, particular provinces were assigned to them in connection with different departments of literature, science, and the fine arts; but the invocations addressed to them appear to have been, as in the case of modern writers, merely formal imitations of the early poets. Their worship among the Romans was a mere imitation of the Greeks, and never became truly national or popular. Among the places sacred to them were the wells of Aganippe and Hippocrene on Mount Helicon, and the Castalian spring on Mount Parnassus.

MUSETTE, n. *mū-zĕt'* [F. dim. of OF. *muse*, a pipe]: in *mus.*, a small bagpipe formerly much used by the various people of Europe; the name of a melody, of a soft and sweet character, written in imitation of the bagpipe tunes· dance tunes and dances in the measure of those melodies; a reed stop on the organ.

MUSEUM, n. *mū-zē'ŭm* [L. *musēŭm;* Gr. *mouseion*, a place dedicated to study and to the Muses—from Gr. *mousa*, a muse: It. *museo*: F. *musée*]: building set apart for systematic arrangement of curiosities in nature and art, or of instructive specimens in any department of study. The name was given originally by the ancients to a temple of the Muses; afterward to a building devoted to science, learning, and the fine arts. The first M. of this kind was the celebrated Alexandrian M. (see ACADEMY). After the revival of learning in Europe, the term was sometimes applied to the apartment in which any kind of philosophical apparatus was kept and used; but it has long been almost exclusively appropriated to collections of the monuments of antiquity, and of other things interesting to the scholar and man of science, or the student of the fine arts. In this sense it was used first in Italy, and probably in the case of the famous Florentine M., founded by Cosmo de' Medici, which soon became a great and most valuable collection of antiquities. Nothing analogous to the museums of modern times existed among the ancients, the greatest collections of statues and paintings which were made in the houses of wealthy Romans having been intended for show and splendor. The name soon ceased to be limited to collections of antiquities, and sculptures, and paintings: collections illustrative of natural history and other sciences now form a chief part of the treasures of many of the greatest museums, and there are museums devoted to particular branches of science. Of the museums of Britain, the British M. (q.v.) is the greatest; that of Oxford, founded 1679, is the oldest.—The M. of the Vatican, in Rome, contains immense treasures in sculptures and paintings, also in books and manuscripts.—The M. of the Louvre, in Paris, that of St. Petersburg, and those of Dresden, Vienna, Munich, and Berlin, are among the greatest in the world. In New York, Boston, Washington, and other great cities of the United States, museums have been established, some of which have become exceedingly important and interesting. The usefulness of a M. depends not merely on the amount of its treasures, but, perhaps, even more on their proper arrangement. Museums appropriated to illustration of the industrial and economic arts are of recent origin, but their importance is increasingly recognized.

MUSH, n. *mŭsh* [Ger. *mus*, pap]: the Amer. name for porridge made from Indian-corn meal.

MUSH, v. *mŭsh* [OF. *mouscheté*, spotted; *mouscheter*, to cut with small cuts]: to nick or notch cloth; to cut or indent cloth with a stamp. MUSH'ING, imp.: N. the art or practice of notching or indenting cloth. MUSHED, pp. *mŭsht*, notched or indented as cloth.

MUSHROOM, n. *mŭsh'rôm* [OF. *mouscheron*, and F. *mousseron*, the small white mushroom—from *mousse*, moss, so named from the nature of the ground on which they grow: L. *muscus*, moss]: edible fungus which grows rapidly, used for making sauces (see MUSHROOM, below): *figuratively*, an upstart: ADJ. resembling a mushroom; upstarting. MUSHROOM-KETCHUP [see KEETCHUP]: a sauce made from mushrooms. MUSHROOM-SPAWN, the seed of mushrooms in a mass; the commonest mushroom is the *Agar'ĭcus campes'tris*, ord. *Fungi*. *Note*.—In OE. we have the spelling *mushrump*, and the suggested derivation W. *maes*, a field, and *rhum*, a knob, is given in Brewer's *Dic. of Phrase and Fable*: one of the most conspicuous of the genus is *Agarĭcus muscārĭŭs*, which is employed for the destruction of *mousches* or flies, and this is also suggested as the real source of 'mushroom': see Prior's British Plants.

MUSH'ROOM, or AGAR'IC (*Agaricus*): genus of fungi, of suborder *Hymenomycetes*, having a *hymenium* of unequal plates or gills on the lower side of the *pileus*. The species are very numerous. Many are poisonous, many are edible, and some are among the most esteemed fungi. The species most esteemed in Britain is the COMMON M. (*A. campestris*), a native also of most of the temperate regions, both of the northern and of the southern hemisphere, and of which a very large and fine variety occurs in eastern Australia. It is found during summer and autumn (but chiefly in autumn) in pastures, orchards, vineyards, etc. It can be grown wherever the land is susceptible of cultivation. Its *pileus* is regularly convex, becoming almost flat when old; fleshy, dry, white with a tinge of yellow or brown; of a silky smoothness on the upper surface, or somewhat scaly, but never warty; thickly set on the under side with very unequal gills, which in a young state are pink, and afterward become dark brown. The pileus is attached by its centre to the top of the stem. The stem is of a firm fleshy texture, and *toward the top* is surrounded by a more or less distinct white membranous ring, the remains of the curtain or veil (*indusium*), which in a young state extends to the pileus, and covers the gills. This M. is gathered for the table when young, being preferred when the veil is still unbroken, and the unexpanded pileus has the form of a ball or button; but both in this state and afterward, while it shows no symptoms of decay, it is used for making Ketchup (q.v.). It has a very pleasant smell and taste, and the flesh, when bruised, assumes a reddish-brown color. It was well known and largely used by the ancients.—Very similar to it, and often sold instead of it in London and elsewhere, but rejected by all skilful housekeepers as unfit even for making ketchup, is the ST. GEORGE'S AGARIC (*A. Georgii*), sometimes called *whitecaps*, frequent in moist pastures and near buildings in all parts of Britain. This species is easily distinguished by its larger size—the pileus being sometimes 18 inches broad—its coarser appearance, its rather dis-

agreeable smell, the yellow color which its flesh assumes when bruised, and the lighter color of its gills. This in the United States is classed with toadstools.—Care must be taken not to confound the Common M. with the white variety of *Agaricus phalloides*, a species not uncommon, which is very poisonous. Perhaps it is the possibility of this mistake which has led to the prohibition of the Common M. in Rome, where many kinds of esculent fungi are brought in great abundance to the market, and

Fig. 1.
(From Sowerby's *English Fungi.*)

1. Parasol Agaric (*A. procerus*); *a*, young. 2. Orange-milked Agaric (*A. deliciosus*); *b*, young. 3. White Field Agaric (*A. virgineus*); *c*, young.

where a special officer superintends the sale of them. *A. phalloides* is, however, easily distinguished by the ring at the *bottom* of the stem, the white color of the gills, the warts on the upper surface of the pileus, and the powerful smell, which becomes extremely disagreeable as the M. grows old.—Another species of M. much in use for the table is the FAIRY-RING M. (*A. oreades*), sometimes called *Scotch Bonnets*—the *Champignon* of the French. It is common in pastures in Britain and most parts of Europe, often forming Fairy Rings (q.v.). It is much smaller than the Common M., the pileus being seldom more than an inch broad, the stem taller in proportion. The stem is solid, fibrous, and tough, with no ring; the pileus smooth, fleshy, tough, convex, with a more or less distinct boss (*umbo*) in the centre, of a watery-brown color; the flesh white. The odor is strong, but agreeable. This M. is used for ketchup, and is also dried and powdered for use at table as a savory addition to sauces and stews. It is constantly brought to market in England. It is liable, however, to be confounded with several poison-

ous species; but only one of them, *A. dealbatus*, forms fairy rings, and this may be readily distinguished by its disagreeable odor, by its becoming grayish-brown in zones when soaked in water, by the margin of the pileus being at first rolled inward, and by its very fine dingy whitish gills.—The ORANGE-MILKED AGARIC (*A. deliciosus*), which grows chiefly in fir-woods and among junipers, has a viscid pileus, four inches or more broad, at first orange, afterward pale, the gills and juice orange, the gills running down the stem, the smell and taste agreeable.—The PARASOL AGARIC (*A. procerus*) is found in pastures, especially under trees. It loves sandy soils. It is remark-

Fig. 2.
(From Sowerby's *English Fungi.*)
4. St. George's Agaric (*A. Georgii*); *d*, young. **5. Common Mushroom** (*A. campestris*); *e*, young. 6. Fairy-ring Mushroom (*A. oreades*); *f*, young. 7. *Clavaria phalloides*; *g*, young.

able for its long stem, 8–12 inches high, with a thick spongy ring. The pileus is 3–7 inches broad, at first obtusely conic, then bell-shaped, covered with brown scales. The taste and smell are pleasant.—The WHITE FIELD AGARIC (*A. virgineus*) is one of the most common of British species, growing in pastures, with viscid or satiny white or whitish convex pileus, fully an inch broad, stem nearly two inches long, and light chocolate-colored distant gills, which run down the stem. It grows either singly or in groups.

In the vicinity of cities and large towns the M. is cultivated to a considerable extent. It is also gathered in pastures and other rural localities favorable to its development. When growing wild a light crop is usually given in the spring and a heavier one in the fall. It is extremely difficult to grow the M. in gardens, as

the extremes of drought and moisture to which gardens are liable will ruin the crop. Light is not necessary to the perfection of the M., and if clear and strong it will prove detrimental. Excessive heat is injurious, though a warm and moist atmosphere is required. The beds in which mushrooms are to be grown should be made in a hothouse or cellar, should be long and narrow (not more than 18 inches high), and should be laid on a ground surface in preference to a floor. The first layer should be three or four inches in depth, formed of coarse and fermented manure. It should be thoroughly watered and then covered to a depth of about 15 inches with a compost of four parts of fresh horse manure (which contains no straw or other foreign substance) and one part each of fermented cow manure and rich loam; all thoroughly mixed and packed as closely as possible by beating and tramping. In order to prevent undue fermentation, this compost should be turned daily for about a week, or until the temperature of the centre of the mass falls to about 85°. Propagation is effected by the use of spawn. This may be obtained from an old bed, from a yard or pasture in which mushrooms grow, or may be purchased in the form of 'brick spawn,' which consists of dried compost containing spores. If the latter is used, the temperature should be about 7° lower than for either of the others. If there is an abundant supply of spawn, it may be placed in the bed in blocks six or eight inches square and two ft. apart; but if the quantity is limited, small masses may be put about eight inches apart. The spawn should be put nearly level with the surface of the bed, and lightly covered with about two inches of moist loam. The bed will need no further attention for about six weeks, when the mushrooms will begin to appear. If suitable means for condensation are provided, the use of steam will be beneficial in keeping the air in a proper condition, as regards both temperature and moisture. In order to provide for a succession, only about one-seventh of the bed should be prepared at a time, a new portion being put in readiness each week. By the time the last part is finished, the crop from the first will have been secured, and this part of the bed may be replanted. As there are many poisonous sorts of mushrooms, those who gather the fungi should become familiar with the edible varieties, and never use those of the qualities of which they are in doubt. Although the rule involves the loss of a very few edible sorts, it will be wise for the amateur to reject all which have a milky juice, which are bright-colored, or which undergo a marked change in color when they are cut or broken. Only fresh fungi should be used.

MUSIC, n. *mū'zĭk* [F. *musique*—from L. *musĭcă;* Gr. *mousikē*, the art of music: It. *musica*]: any succession of sounds, or combination of sounds, which please and delight the ear; the science of harmonical sounds (see below). **MUSICAL**, a. *mū'zĭ-kăl*, pertaining to or consisting of music; pleasing to the ear; melodious; sweet-sounding; skilled in music, as 'he is very musical;' producing music, as a *musical* voice. **MU'SICALLY**, ad. *-lĭ*. **MU'SICALNESS**, n. *-nĕs*, the quality of being musical. **MUSICIAN**, n. *mū-zĭsh ăn*, a skilled musical performer. **MUSIC OF THE SPHERES**, *among the ancients*, a supposed harmony caused by the motions of the heavenly bodies. **MUSICAL-GLASSES**, a number of small glass vessels so arranged that a skilful performer can produce sweet music from them. **MUSIC-SELLER**, a shopkeeper who sells printed music generally, and such musical instruments as pianofortes, organs, harps, etc.

MU'SIC: combination or succession of sounds having the property of *pitch*, so arranged as to please the ear. The pleasure derived from M. arises from its exciting agreeable sensations, and raising pleasing mental images and emotions. Apart from words, it expresses passion and sentiment, and, linked to words, it loses its vagueness, and becomes a beautiful illustration of language.

The doctrine of musical sounds is based on the principles of Acoustics (q.v.). Sound is conveyed through elastic media by waves, not of alternate elevation and depression, but of alternate condensation and rarefaction, in which it is the form—the condition of the groups of particles—that progresses, not each individual particle. When a series of vibrations recur on the ear at precisely equal intervals of time, following each other so closely that each cannot be separately distinguished, the result is a musical sound or note. The sound ceases to have a musical character when each pulsation is individually audible, as is the case when there are fewer than about 16 beats in a second. The gravity or sharpness of the sound is called its *pitch*, and depends on the number of vibrations in a given time. A succession or progression of musical sounds following each other constitutes *melody*; the difference in pitch between any two of them is called an *interval*. Where two or more musical sounds, whose relative pitch is properly proportioned, are heard simultaneously, the result is a *chord*, and a succession of chords constitutes *harmony*.

When a vibration is communicated to a string stretched between two points, the result is a musical *note*, whose pitch is dependent on the length of the string and the degree of tension applied to it: the shorter the string, and the greater the tension, the higher is the pitch. If the string be divided in the middle, the tension remaining the same, the note produced is twice as high in pitch, and is called the octave to the note produced by the whole string. Every vibration of the one corresponds to two of the other, and there is between a note and its octave a far closer relation than between any two other

notes; they go together almost as one sound, and are considered to a great extent as one musical sound. In the diatonic scale, familiar to every correct ear, there are six notes, bearing certain harmonic relations to the fundamental note, interposed between it and its octave; and as we ascend, the notes arrange themselves in similar successions of sevens, each set an octave higher, or double the pitch of that which preceded it. The seven notes are designated by the names of the first seven letters of the alphabet, the same letter being used for any note and its octave. (For another notation also in use, see SOLFEGGIO: TONIC SOL-FA.) Taking C for the fundamental note, we have for our scale

Ċ D E F G A B Ċ D E F G A B Ċ, etc.

The scale may be extended up or down, indefinitely, so long as the sounds obtained continue to be musical. The satisfaction and sense of completeness which the diatonic scale gives the ear arise from its being founded on correct harmonic principles. The quality called harmony is produced by a coincidence of vibrations: notes are more harmonious the oftener their waves coincide. Besides the octave, two of whose waves coincide with one of the fundamental, there are other intervals harmonious, though in less degree. Dividing our string into three parts instead of two, we have a note higher than the octave, which may be lowered by an octave by making the string two-thirds of the original length, and produces a wave of which three coincide with two of the fundamental. Next to the octave, this note stands in the most intimate relation to the fundamental; it is called the dominant. Dividing the string by five, and lowering the note two octaves, another harmonic is got, called the mediant. In distinction from both these, the fundamental note (or any of its octaves) is called the tonic or key-note. C being taken as the key-note, E is the mediant, and G the dominant. These three notes, when struck simultaneously, form the harmonic triad, and stand to each other in the relation of 1, $\frac{5}{4}$, $\frac{3}{2}$ (numbers indicating the number of vibrations, which are inversely as the length of the string), or, reducing fractions to integers, in the relation of 4, 5, 6. When a musical string is vibrating, these sounds are heard on close observation more or less distinctly vibrating along with it, the cause being a spontaneous division of the string into aliquot parts, producing subordinate vibration simultaneously with the principal vibrations. But the dominant may in its turn be the tonic from which another triad of tonic, mediant, and dominant is taken, forming a scale of triads extending indefinitely up and down; and it is from three such adjacent triads that the diatonic scale originates. Its elements are the triad of the tonic united with the triads which stand in the most intimate relation to it—viz., those immediately above and below it—

F A C, C E G, G B D.

F is the note whose dominant is C (the tonic), and there-

fore, in respect of C, it is called the subdominant. A is the mediant of the subdominant F, and therefore called the submediant. D is the dominant of the dominant, and is called the supertonic. B, the mediant of the dominant, is called the leading note. We have seen that the notes of each triad stand to each other in the relation of 4, 5, 6. Preserving this proportion, and multiplying to avoid fractions, we have

F A C E G B D
as 16, 20, 24, 30, 36, 45, 54.

We must multiply F and A by 2, and divide D by 2, to bring them within the compass of an octave, and then we have

C D E F G A B C
as 24, 27, 30, 32, 36, 40, 45, 48.

These are the degrees of the Diatonic Scale, which are indicated by the white keys of the pianoforte, as in the second following figure.

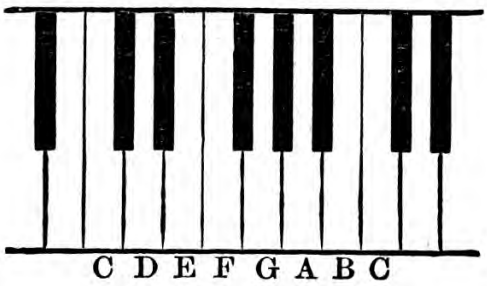
The interval CD is commonly called a second; CE, a third; CF, a fourth; CG, a fifth; CA, a sixth; and CB, a seventh; CC being, as already seen, an eighth or octave —names corresponding to the position of the notes on the key-board or in the diatonic scale, but having no relation to the proper proportional numbers already given. The intervals of the third, fifth, and sixth (counting from the key-note), owing to the more intimate harmonic relation of the notes between which they lie, afford more satisfaction to the ear than the others, or are, as it is called, the most perfectly consonant intervals. Intervals may be counted from any note as well as the tonic. DF is called a third as well as CE, though these intervals are unequal. We may have intervals beyond the octave; they are, however, substantially repetitions of those below, CD, a ninth, being also a second, and so on.

It is often desirable in the course of a musical composition to change the key-note, which involves the formation of a diatonic scale on some other note than C, in which case we are said to modulate from one key into another. As the intervals CD, DE, EF, etc., are not all equal, the notes which we have already got will not do for a scale founded on any other tonic than C. The ratios of the intervals in the diatonic scale, expressed in numbers by logarithms, are:

C D E F G A B C
51 46 28 51 46 51 28

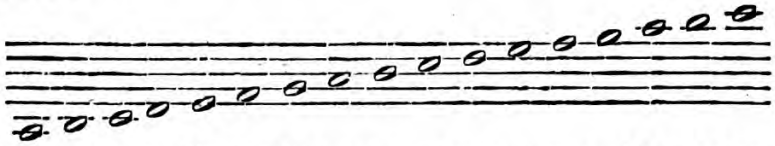
At first sight it might appear that in keyed instruments there must be a separate row of keys for each tonic, but practically this is found unnecessary. If D instead of C be taken as key-note, E, G, and A are some approach to the correct second, fourth, and fifth, but F and C are greatly too low in pitch for a proper third and seventh. With some notes taken as key-note, the correspondence

is greater, with others it is less. The difficulty is overcome by a system of compromises called Temperament (q.v.). Roughly speaking, we have in the diatonic scale an alternation of two long intervals, a short interval, three long intervals, and a short interval. The long intervals 51 and 46 are styled tones, and the short interval 28 a semitone. Were the tones all equal, and the semitone exactly half a tone, a note interposed in the middle of each tone, dividing the seven intervals into twelve, would make it immaterial where the scale began. A system founded on this supposition is the remedy actually adopted in most keyed instruments, and the inaccuracy produced by this compromise is not sufficiently great



to offend the ear. The interposed notes, indicated by the black keys of the pianoforte (see fig.), complete what is called the chromatic scale, consisting of twelve intervals approximately equal.

The notes of music are represented in ordinary notation on a series of five parallel lines, called the staff. On these lines, and in the four spaces between them, marks are placed indicating the notes, which are counted upward, beginning with the lowest line. Every line or space is called a degree, the staff consisting of nine degrees.



When more than nine notes are required, the spaces below and above the staff are used, and the scale is extended by means of short added lines, called leger lines. The pitch of the notes on the scale is determined by a figure called a clef (*clavis*, a key), placed at the beginning of the staff on a particular note, from which all the others are counted. The clefs most in use are the bass, tenor, and treble clefs, represented on the notes F, C, and G respectively (see CLEF). The treble and bass clefs only are used in music for keyed instruments, and when a staff is required for each hand, they are joined together by a brace, the upper staff for the right hand, the lower for the left. The ascending scale in these clefs is as follows:

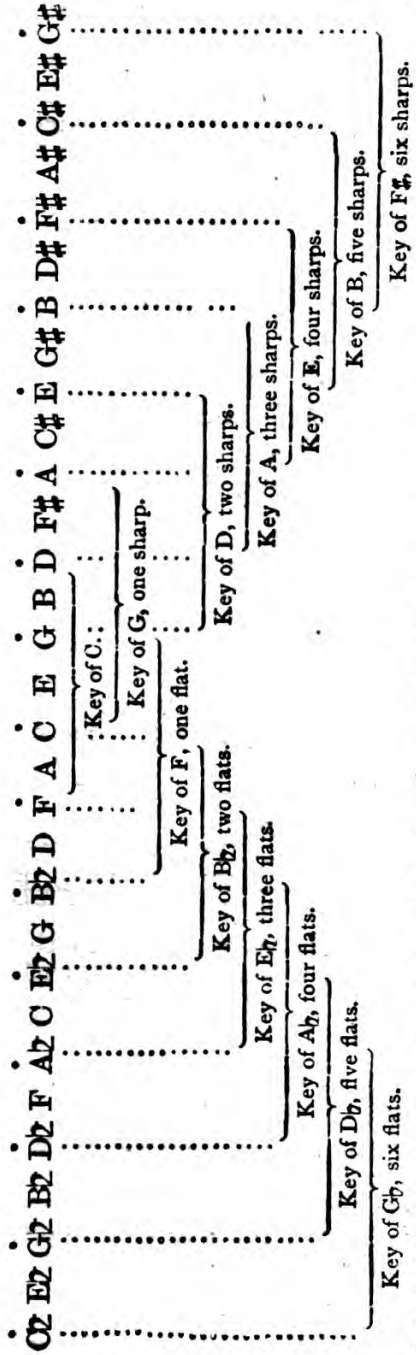
MUSIC.

These notes correspond with the white keys of the pianoforte or the diatonic scale when C is key-note, no allowance being made for the black keys, which, as we have seen, divide the tones into semitones. Those semitones which do not occur with C as key-note are represented by the signs ♯ (sharp) and ♭ (flat). The sign ♯ prefixed to a note elevates it a semitone in the scale, raising, e.g., F to F sharp. ♭ lowers the note by a semitone, depressing B to B flat. When a note which has been elevated by a sharp, or depressed by a flat, is to be restored to its original place, the character ♮ (natural) is prefixed to it.

The names of the intervals correspond to the degrees of the staff, but it has been seen that intervals of the same name are not necessarily equal. If the sign of a flat or a sharp be prefixed to either note of an interval, it still preserves its name of a third, a fifth, etc.; but to distinguish intervals of the same degree, the qualifying epithets of major and minor, augmented and diminished, are used.

The different keys in music are best understood by reverting to the scale of triads, on which the diatonic scale is founded. Taking a series of triads, of which the dominant of each is the key-note of the next, we obtain the scale given on next page, extended both upward and downward from C.

Each triad is composed of the key-note, its mediant, and dominant, and the scale of each key is composed of the triad of the key-note, with the triad immediately preceding and that immediately following it. Each key is succeeded by the key of its dominant; and if we begin with the key of C (in the middle of the scale), each key acquires an additional sharp till we reach the key of F♯ with six sharps. These are the sharp keys. If, beginning again with the key of C, we go back instead of forward in the scale of triads, we obtain the flat keys; each key has an additional flat to that above it, till we come down to the key of G♭ with six flats. This key in instruments with temperament is exactly the same with that of F♯, and on this account it is not generally found convenient to extend the keys beyond six, or at most seven, sharps or flats. G♯ with seven sharps is the same as D♭ with five flats, and C♭ with seven flats is the same as B with five sharps. In music written in these keys, double sharps and double flats oc-



cur, which are indicated by the characters ✕ and ♭♭ respectively. In writing music in any key with sharps or flats, it is usual, instead of prefixing the sharp or flat to each note when required, to place the sharps and flats belonging to the key together after the clef, on the degree to which they belong, and such collections of sharps or flats are called the signature. A sharp or flat introduced in a composition which does not appear in the signature is prefixed to the note, and called an accidental.

The diatonic scale and keys above described belong to what is called the major mode; there is also another mode in use called the minor mode. In the minor, as in the major mode, the diatonic scale and the keys are based on the scale of triads. Each of the triads already considered consists of two unequal intervals, called a major third and minor third. Supposing we begin with the minor instead of the major third, we have a succession of chords taking their minor third from one triad and their major third from another. These compound chords are called minor triads. Their proportion is as 10, 12, 15, and out of three such consecutive minor triads the scale of the minor mode is constructed.

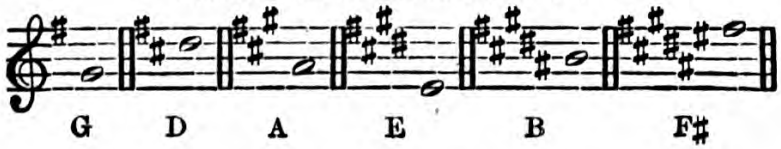
Ḋ	F	Ȧ	C	Ė	G	Ḃ
80,	96,	120,	144,	180,	216,	270.

Multiplying D and F by 2, and dividing B by 2, to bring the whole within the compass of an octave, we have

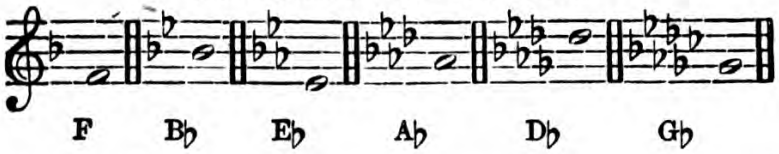
A	B	C	D	E	F	G	A
120,	135,	144,	160,	180,	192,	216,	240.

The scale here represented is what is known as the descending scale of the minor mode. When the seventh of the scale ascends to the eighth, it becomes sharp, as the proper leading note or sharp seventh to the tonic. This sharp is, however, always omitted from the signature, and placed accidentally before the seventh which it is to

SIGNATURES OF THE SHARP KEYS.



SIGNATURES OF THE FLAT KEYS.



elevate. In order to avoid the harsh interval of the augmented second (from F to G♯), it is usual in the ascending scale to make the sixth sharp also, in order to accommodate the seventh; thus the ascending or accidental scale of the minor mode has two notes altered from the signature.

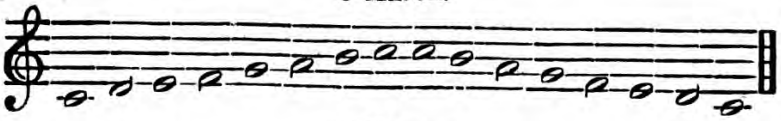
ASCENDING SCALE. DESCENDING SCALE.

Each minor scale is called the relative minor to the major scale on its right hand in the scale of triads, with which it has the same signature: thus the relative minor scale to C major is that of A minor.

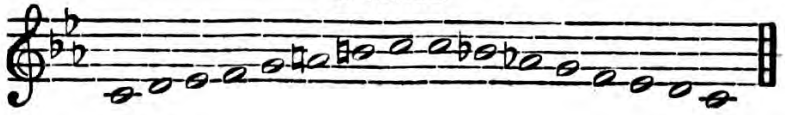
C major Ḟ A Ċ E Ġ B Ḋ
A minor Ḋ F Ȧ C Ė G Ḃ

Each minor scale is also called the tonic minor to the major scale on the same key-note, from which it differs in flattening the third of its tonic, and in the descending scale also the third of its subdominant and dominant. The tonic minor scale to C major is C minor.

C MAJOR.



C MINOR.



As the descending scale regulates the signature, each tonic minor has three flats more, or three sharps less in its signature than its tonic major.

F MAJOR. F MINOR.

A MAJOR. A MINOR.

G MAJOR. G MINOR.

In this last example, F♯, B♮, and E♮ all are considered sharps in contrast with F♮, B♭, and E♭ of the minor scale.

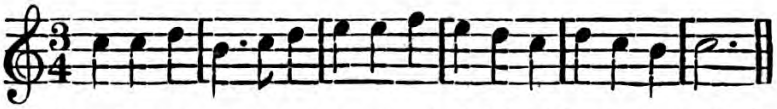
Rhythm.—In musical notation, the relative duration of notes is indicated by their form. Notes may be open or close; they may consist of a head only, or of a head and stem. Where there is a stem, it may be turned up or down, according to convenience. The semibreve, the longest note in ordinary music, is open and consists of a head only(𝅝). The minim is an open note with a stem, half the length of a semibreve, 𝅗𝅥 ; the crotchet is a close note with a stem, half the lnegth of a minim, ♩ ; the quaver is a close note with a stem and hook, half the length of a crotchet, ♪ ; a quaver is further divided into two semiquavers with two hooks, 𝅘𝅥𝅯 ; four demi-semiquavers with three hooks, 𝅘𝅥𝅰 ; and eight semi-demi-semiquavers with four hooks, 𝅘𝅥𝅱 . In slow religious music, an open square note, called a breve, 𝅜 , sometimes occurs. The semibreve is equivalent in time to two minims, four crotchets, eight quavers, sixteen semiquavers, thirty-two demi-semiquavers, and sixty-four semi-demi-semiquavers. The notes formed with hooks may be grouped together : . In vocal music this is not done except when a group is to be sung to one syllable. When a dot is placed after a note, ♩ ·

it is lengthened by one-half; when two dots, ♩··, it is lengthened by three-fourths.

Every piece of music is divided into portions equal in time, called measures, which are separated from each other by vertical lines called bars. The term bar is often loosely used to denote the measure as well as the line. The exact length of the measure is indicated by a sign at the beginning of the movement. In common time, indicated by the sign C, each measure includes a semibreve, or its equivalent made up in notes of lower value:

All other measures of time have for their signatures two figures placed as a fraction, one over the other. The figures of the denominator are either 2, 4, 8, or 16, which stand for minims, crotchets, quavers, and semiquavers respectively (i.e., halves, fourths, etc., of a semibreve); the numerator indicates the number of these fractional parts of a semibreve contained in each measure. There is another form of common time besides that already noticed, which is called half-time, has a minim or two crotchets in the measure, and is known by the signature $\frac{2}{4}$, i.e., two crotchets.

When there are three minims, crotchets, or quavers in a measure, the piece is said to be in triple time, its signature being $\frac{3}{2}$, $\frac{3}{4}$, or $\frac{3}{8}$.



When two or four measures of triple time are united in one measure, the movement is said to be in compound common time. Its usual forms are indicated by the signatures $\frac{6}{4}$ and $\frac{6}{8}$. In the first, there are three submeasures of three crotchets; in the second, two submeasures of three quavers:

Compound triple time occurs where there are nine notes

in a measure, either crotchets, quavers, or semiquavers grouped in threes. Its signatures are $\frac{9}{4}$, $\frac{9}{8}$, and $\frac{9}{16}$. A variety occasionally occurs in simple or triple time by the measure note being divided into three, or even five or seven, instead of two parts, which are grouped together, sometimes with the figure 3, 5, or 7, placed above them:

The object of the division of musical passages into measures is to indicate their rhythm, a quality forming an essential element in the pleasure derived from music. Notes of music, like words or syllables, are accented or unaccented. The principal accent is given to the first note of a measure. Of the four measure notes in common time, the third has also a subordinate accent, as has the third measure note in triple time. There are occasions when a strong accent, or emphasis, as it is called, is laid on the part of the measure which is usually unaccented; this the composer indicates by the Italian terms *rinforzando*, *sforzato*, abbreviated *rinf.*, *sf.*

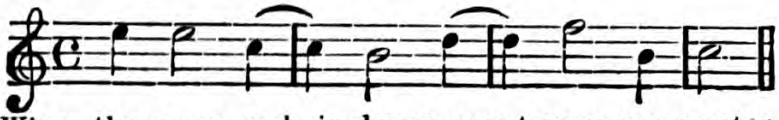
When in the course of a movement silence is required for a time, this is indicated by a rest or rests corresponding to that time; the breve, semibreve, minim, etc., have each their respective rests, which are represented as follows:

A rest may, like a note, be dotted to indicate the addition of half to its length.

The double bar, , consists of two strong vertical lines, placed at the end of a musical composition, also at other parts (not necessarily coincident with the end of a measure) where a strain or rhetorical division of a movement terminates. When dotted on one side, all the measures on the side with the dots are to be repeated from the beginning, or from the antecedent double bar.

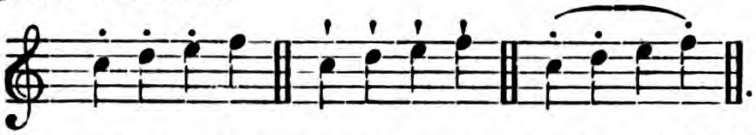
A tie is an arch placed between two notes on the same degree, to indicate that, instead of the two notes written, one note is to be played of the length of both. When the last note of one measure is thus connected with the first

of the next measure, the former, though naturally the unaccented note, acquires the emphasis:



When the same arch is drawn over two or more notes not in the same degree, it is called a slur, and merely indicates that they are to be played smoothly or fluently (*legato*):

When notes are to be played short, distinct, and detached (*staccato*), a dot is placed over them. A dash implies a greater, and the union of dot and slur a less, degree of staccato:



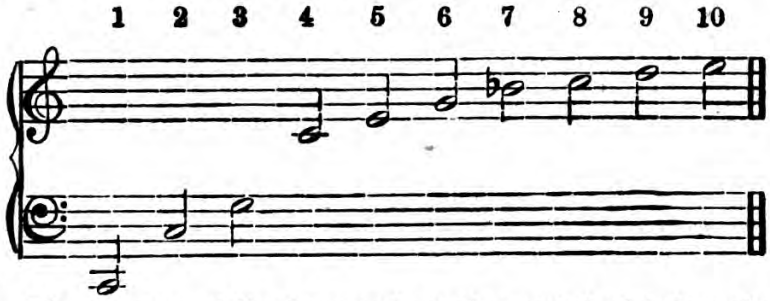
The pause, ⌒, placed over a note indicates a delay in the time of the movement, and a continuance of the sound made on that part of the measure.

The various degrees of softness and loudness which occur in a piece of music are indicated by the letter ***f*** for *forte*, loud; ***p*** for *piano*, soft, also ***pp*** for *pianissimo*, very soft; ***mf*** for *mezzo forte*, rather loud, and ***ff*** for *fortissimo*, very loud. A gradual increase of loudness is denoted by the word *crescendo*, or the sign <; and a diminution from loud to soft by the word *diminuendo*, or the contrary sign >. Many other expressions are used in the body of written music, indicating slowness, quickness, and the character of execution. For the most important of them, see the separate titles—also for the various musical graces or embellishments known under the names Appoggiatura, Beat, Shake, and Turn. Among abbreviations in frequent use are a line drawn over or under a semibreve, or through the stem of a minim or crotchet, to divide it into quavers; or a double line, to divide it into semiquavers. Two minims may be connected to indicate their repetition as quavers. Thus:

Written.

Played.

Harmony.—We have mentioned that when a string is struck, its harmonics are more or less distinctly heard along with it. This arises from the string spontaneously dividing itself into aliquot parts—as one-half, one-third, one-fourth, one-fifth, one-sixth, one-seventh, etc., of the string. The numbers 2, 3, 4, 5, 6, 7, expressing the relative number of vibrations in a given time, are a measure of the pitch of the note, and placed proportionally to one another, or in the form of a fraction, they are a measure of the interval. The prime numbers 2, 3, 5, and 7, and their compounds, constitute the harmonics of a musical sound; no division by a higher prime number is tolerable to the ear along with the fundamental note, and no sound corresponding to such division is audible in the vibrations of a string—



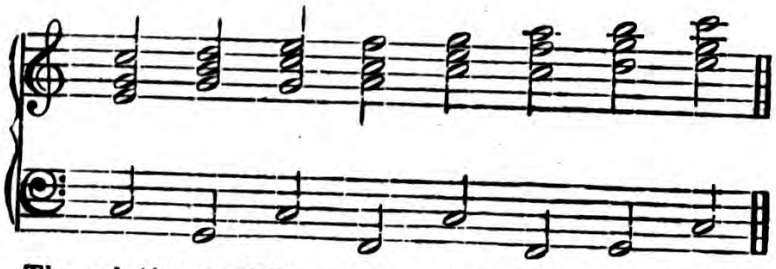
The degrees of the harmonic scale consist of intervals decreasing in a geometrical ratio from the octave to the minor tone—viz.:

1 : 2 Octave.	6 : 7 Grave third.
2 : 3 Fifth.	7 : 8 Tone maximus.
3 : 4 Fourth.	8 : 9 Tone major.
4 : 5 Major third.	9 : 10 Tone minor.
5 : 6 Minor third.	

Other intervals more or less consonant are found in the harmonic scale, of which the most important is 4 : 7, the grave seventh. From this scale is derived the triad, which we have seen to be the foundation of the diatonic scale, also the whole theory of chords.

The first five notes of the harmonic scale are the component parts of the major common chord, by far the most consonant chord that can be produced by five notes. Neglecting octaves, its essential notes are the major triad, C E G, or 4, 5, 6, which, as already seen, consists of a fifth divided harmonically into major third and minor third. The root on which a chord is formed, or the note by whose division into aliquot parts the notes of the chord are produced, is called its fundamental bass, and the fundamental bass of the triad C E G is C. The common chord is the triad with the addition of the octave of the root; its proportions are 4, 5, 6, 8. Every key contains within itself two other triads besides that of the key-note—viz., those of the subdominant and dominant, which have the subdominant and dominant of the key-note respectively for their fundamental

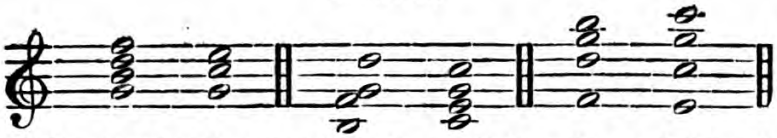
basses; and the feeling of satisfaction produced by the diatonic scale arises out of the fact, that its notes belong to a progression of chords formed on a fundamental bass suggested by the ear. This fundamental bass is here indicated on the lower staff—

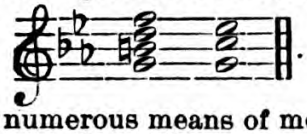
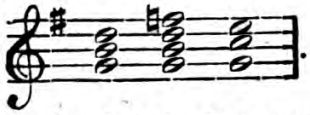
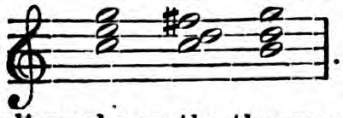


The relative position of the notes of a chord, and consequently its intervals, may be altered by raising one or more of them an octave; and, on the whole, the nearer the intervals approach to their position in the harmonic scale, the purer is the harmony. Close, in contradistinction to dispersed harmony, is when the notes of a chord are so near that no component note could be placed between them. When the fundamental bass of a chord ceases to be its lowest note, the chord is said to be inverted. Thus and are inversions of the common chord, but not , where the fundamental bass is still the lowest note.

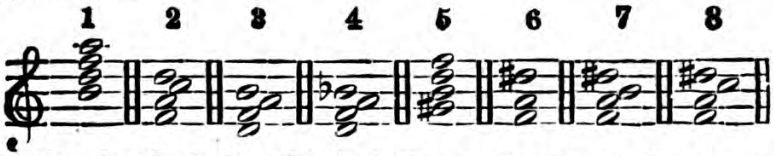
The minor triad is, as we have seen, a compound chord, whose ratio is 20, 24, 30, taking its minor third from the triad below, and its major third from the triad above. Its fundamental bass is the key-note. The minor mode has, like the major, three triads in each key—those of the tonic, subdominant, and dominant; and the minor common chord admits of the same inversions as the major, by making the third or fifth the lowest note.

The first seven notes of the harmonic scale contain the chord next in consonance to the common chord, the chord of the seventh or dominant harmony. Rejecting octaves, it is the harmonic triad with the addition of the grave seventh, 4, 5, 6, 7, C E G B♭, or G B D F, and admits of three inversions, according as the third, fifth, or seventh is taken instead of the root as the lowest note. This chord belongs to the key of which its fundamental note is the dominant; and in order to satisfy the ear, it requires to be followed by a resolution into the common chord of the key, or one of its inversions, the major third rising a semitone to the key-note, and the seventh descending one degree—



The dominant seventh note is flatter by an interval of 63, 64 than the subdominant of the key, though the two are not distinguishable on keyed instruments. The chord of the dominant seventh is the same in the tonic minor as in the major mode, but differs in its resolution, in respect that it descends a tone instead of a semitone:  . The dominant harmony affords numerous means of modulating from one key to another; e.g., the addition of a dominant seventh to the common chord of a key effects a modulation into the key of the subdominant:  . In modulating into the key of the dominant, the supertonic bears the dominant harmony, and becomes dominant of the new key:  . For other modulations, consult works on the theory of music.

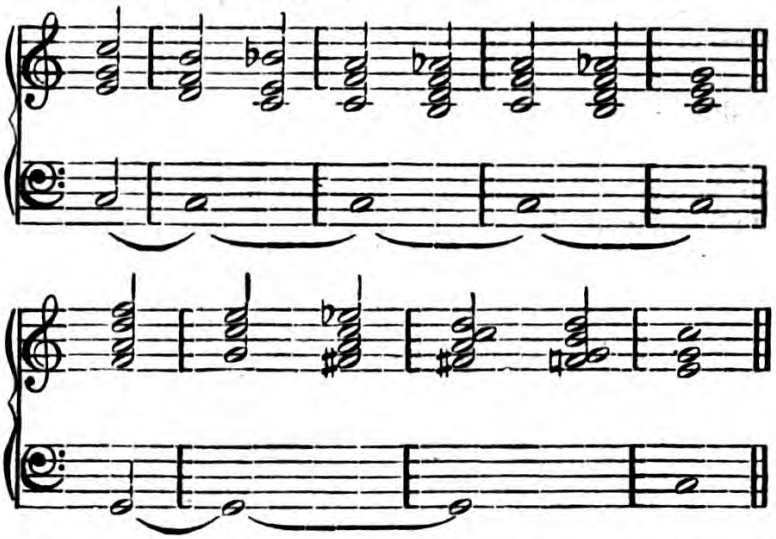
The following more complex harmonies also are in general use:



1, the chord of the added ninth, consisting of the dominant harmony (its root generally omitted) with the fifth of the adjacent triad above. 2, 3, and 4, the different forms of the added sixth, or chord of the subdominant. 2 is the triad of the subdominant, with the third of the adjacent triad below, or rather its octave; 3 is the triad of the subdominant, minor mode, with the third of the adjacent triad below; and 4, the same triad with the third of the tonic major to the adjacent triad below. 5, the diminished seventh, a compound of the characteristic notes (B F) of the dominant harmony of the major mode with those (G♯ D) of the relative minor. 6, 7, and 8, the augmented sixths, all dominant harmonies, resolving into the major tonic. 6, called the Italian sixth (F A D♯), is a compound of the characteristic notes (A D♯) of the dominant harmony of the minor mode (B D♯ F A) inverted, with the dominant seventh note (F) of the major triad (C E G) below for a bass; 7, the French sixth (F A B D♯), the same as the last, with the addition of

the octave to the fundamental bass; 8, the German sixth (F A C D♯), compounded of the characteristic notes of the dominant harmony of the minor mode inverted, with the dominant sevenths of the major triads below and above.

All classical harmonies can be reduced to the chords enumerated, varied by inversions, omissions, suspensions, and pedal basses. A pedal bass or organ-point is a bass note sustained through a progression of chords, to only the first and last of which it is the proper bass. The pedal bass of the tonic is often used with the chord of the dominant seventh, the added ninth, and the diminished seventh, and occasionally with other chords: sometimes the pedal harmonies are taken on the dominant instead of the tonic, and the holding note sometimes occupies an upper part instead of the bass:

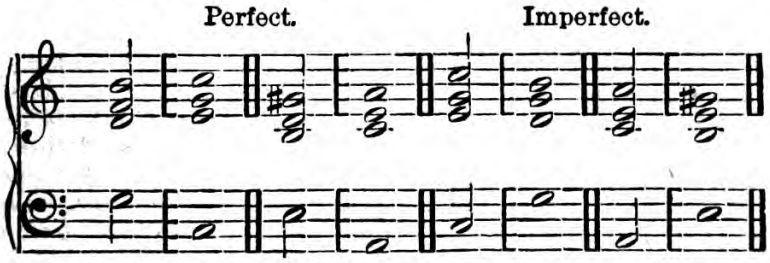


A musical composition consists of a succession of notes or of chords subject to certain laws. Like discourse, music has its phrases, periods, and punctuation. When a piece of music continues in the same key, it is said to move by progression, a term used in distinction from modulation, in which the key is changed. Progression in music of two parts is of three kinds—oblique, when one part repeats or holds on the same note, while the other moves up and down; direct, where both parts move in the same way; and contrary, where one moves up, and the other down. Consecutive chords should in general be connected, either as having some note in common, or as being the chords of closely connected keys. There are certain chords which require a special resolution—i.e., they must be followed by certain other chords; and there are certain progressions which, from harshness, are in ordinary cases to be avoided, more particularly consecutive fifths and consecutive octaves, the latter, however, being admissible when used merely

to strengthen a part. Modulation is generally effected by introducing the chords common to both keys, and the secret of good modulation consists in the skilful choice of intermediate chords. Every regular piece of music is composed in a particular key, in which it begins and ends, and which predominates over all the other keys into which it has modulated. The keys into which a key most readily modulates are those most nearly related to it—viz., the dominant, the subdominant, and the relative and tonic major or minor. We have seen how modulation may take place by introducing the dominant harmony of the new key or one of its inversions, and in this way the entire harmonic circle of the keys can be made, either by ascending or descending fifths; but in order to effect this change, it will be necessary, on reaching the key of C♯ with seven sharps, to substitute, by what is called an Enharmonic (q.v.) change, D♭ with five flats, or *vice versâ*, which on instruments with temperament produces no real change on the pitch, but merely on the names of the notes.

The arrangement of chords which the ear naturally expects at the close of a strain is called a cadence; it corresponds in music to the period which closes a sentence in discourse. It is perfect when the harmony of the dominant precedes the harmony of the key-note, and imperfect when the harmony of the key-note precedes that of the dominant without its seventh.

The imperfect cadence is the most usual termination of a musical phrase, or short succession of measures containing no perfect musical idea. A portion of melody formed of two regular phrases, and containing a perfect musical idea, is called a section, and its regular termination is the perfect cadence:



Music is produced by the human voice and by a variety of artificial instruments. For the application of the voice to musical purposes, see SINGING. Musical instruments are classified as stringed instruments, wind instruments, and instruments of percussion. In some stringed instruments, as the pianoforte, the sounds are produced by striking the strings by keys; in others, as the harp and guitar, by drawing them from the position of rest. In a third class, including the violin, viola, violoncello, and double bass, the strings are put into vibration with a bow. In wind-instruments, the sound is produced by the agitation of an inclosed column of

air; some, as the flute, clarionet, oboe, bassoon, flageolet—instruments of wood, and the trumpet, horn, cornet-a-piston, etc., of metal, are played by the breath; in others, as the organ, harmonium, and concertina, the wind is produced by other means. In the two last-named instruments, the sound is produced by the action of wind on free vibrating springs or reeds. Instruments of percussion are such as the drum, kettle-drum, cymbals, etc. For the chief peculiarities of the more important musical instruments, see the special titles.

Musical compositions are either for the voice, with or without instrumental accompaniment, or for instruments only. Of vocal music, the principal forms may be classed as church music, chamber music, dramatic music, and popular or national music. The first includes plain song, faux-bourdon, the chorale, the anthem, the sacred cantata, the mass and requiem of the Rom. Cath. Church, and the oratorio. Vocal chamber music includes cantatas, madrigals, and their modern successors—glees, also recitatives, arias, duets, trios, quartets, choruses, and generally all forms, accompanied or unaccompanied, intended chiefly for small circles. Dramatic music comprehends music united with scenic representation in a variety of ways, in the ballet, the melodrama, the vaudeville, and the opera, in which last, music supplies the place of spoken dialogue. Instrumental music may be composed for one or for more instruments. The rondeau, the concerto, the sonata, and the fantasia generally belong to the former class; to the latter, symphonies and overtures for an orchestra, and instrumental chamber music, including duets, trios, quartets, and other compositions for several instruments, where each takes the lead in turn, the other parts being accompaniments. For these and other forms of composition, see the separate titles.

History of Music.—A certain sort of music seems to have existed in all countries and at all times. Even instrumental music is of very early date: representations of musical instruments occur on the Egyptian obelisks and tombs. The music of the Hebrews is supposed to have had a defined rhythm and melody. The Greeks numbered music among the sciences, and studied the mathematical proportions of sounds. Their music, however, was but poetry sung, a sort of musical recitation or intoning, in which the melodic part was a mere accessory. The Romans borrowed their music from the Etruscans and Greeks, and had both stringed instruments and wind instruments.

The music of modern Europe is a new art; nothing analogous seems to have existed among the nations of antiquity. The early music of the Christian Church was probably in part of Greek, in part of Hebrew origin. The chorale was sung at first in octaves and unisons. St. Ambrose and Gregory the Great directed their attention to its improvement, and under them some sort of harmony or counterpoint seems to have found its way

into the service of the church. Further advances were made by Guido of Arezzo, to whom notation by lines and spaces is due; but the ecclesiastical music had still an uncertain tonality and an uncertain rhythm. Franco of Cologne, 13th c., first indicated the duration of notes by diversity of form. The invention of the organ, and its use in accompanying the chorale, had a large share in the development of harmony. With the music of the church, and independently of it, a secular music was making gradual advances, guided more by the ear than by science; it seems to have had a more decided rhythm, though not indicated as yet by bars. The airs which have become national in different countries were developments of it, but it had its chief seat in Belgic Gaul; and the reconciliation of musical science with musical art begun in Flanders by Josquin Deprès in the 15th c., was completed in the 17th c. by Palestrina and his school at Rome, and reacted eventually on the ecclesiastical style. The opera, which appeared nearly contemporaneously with the Reformation and revival of letters, greatly enlarged the domain of music. Italy advanced in melody, and Germany in harmony. Instrumental music occupied a more and more prominent place. Corelli's compositions exalted the violin. Lulli and Rameau, with their ballet-like music, seized the characteristics of French taste, till the German Gluck drove them out of the field. The scientific and majestic fugue reached its highest perfection under Johann Sebastian Bach. The changes introduced in ecclesiastical music in England at the Restoration gave birth to the school of Purcell; and, a little later, England adopted the German Handel, who was the precursor of Haydn, Mozart, Beethoven, Spohr, and Mendelssohn. The principal fact in recent musical history is the movement with which the name of Wagner is connected, having for its aim the production and perfection of a true musical drama, in which, unlike the opera, the words and music shall be of equal importance.

See Pepusch's *Treatise on Harmony*, Calcott's *Musical Grammar*, Hawkins's and Burney's *History of Music*, Marx's *Allgemeine Schule der Musik*, Brown's *Elements of Musical Science*, and Grove's great *Dictionary of Music and Musicians*.

MU'SICAL BOX: case inclosing a mechanism so constructed as to produce music by its ordinary action. Some mechanical music has long been a feature of the construction of clocks; but real musical boxes were not known until after 1750. They are constructed on the same principle as barrel or hand organs and mechanical chimes of bells. The principal parts of the mechanism are the comb, the cylinder, and the regulator. The metal teeth or tongues of the comb, being of varying length and thickness, serve to give different tones when caused to vibrate. The cylinder of brass is set with numerous pins of steel, so arranged as to strike the proper tongues and produce the tones required. The

cylinder may be moved into several positions, and by extra cylinders a M. B. is made to play over 100 tunes. Bells, drums, castanets, may be attached. The best are made at Geneva, Switzerland; others at Prague, and at St. Susanne in France; and musical clocks in the Black Forest, Germany.

MU'SIC RECORDER: apparatus for writing down music in a legible form by the very act of playing it on a keyed instrument, such as the pianoforte or organ. Beginning with 1747, various attempts had been made to effect this object, when, in England, 1863, Mr. Fenby invented and patented his *Phonograph* (quite distinct from Bell's PHONOGRAPH, q.v.). His chief aim, as an improvement on previous apparatus, was to devise a method of denoting the length of the notes, as well as their pitch and the interval between them. On pressing down any key of the instrument, a stud on the under side touches a spring; the spring sets in action a small electro-magnetic apparatus, which causes a tracer to pass against a strip of paper moving onward at a uniform rate by means of a cylinder and clock-work. The paper is chemically prepared, so as to receive a brown stain whenever the tracer passes along its surface. The length of each note is expressed by horizontal dashes of greater or less length, made by the tracer; and the arrangement is such as to denote the lines of the stave as well as the character of the note. By subsidiary adjustments, the apparatus is made to express accidental sharps and flats, changes of time, etc.

The Abbé Moigno's *Phonautograph*, introduced to the British Assoc. 1860, is a contrivance, not for noting down sounds in any kind of musical notation, but for causing a vibrating surface to tell its number and character of vibrations. A kind of spheroidal drum is covered at one end with a diaphragm or stretched membrane; a sheet of paper is carried along this drum-head by means of clock-work; and a system of small levers moves a pen. A tuning-fork, an organ-pipe, or the voice is sounded in proximity to the drum, the body of air within which acts as a reinforcement of the sound; the membrane vibrates in a manner which can be *felt* by the pen, although not seen by the eye; and the pen makes zigzag markings on the paper. When the sound is produced by a tuning-fork or an organ-pipe, the zigzag lines are so regular that they serve to count the number of vibrations belonging to each particular note. When the sound is that of a singing voice, the markings become very peculiar, especially in words containing the gutturals *r g*, etc.—For the more recent PHONOGRAPH, see that title.

MUSIT, n. *mū'zĭt* [OF. *mussette*, a little hole, a corner: F. *musser*, to hide]: in *OE.* and *Shak.*, a small gap in a hedge through which a hare may pass.

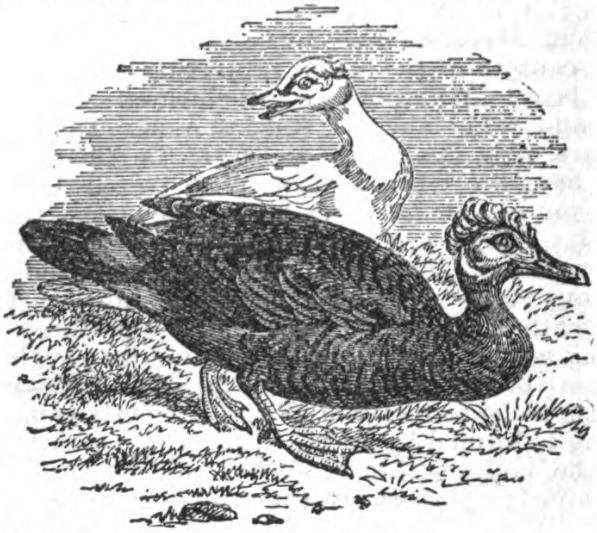
MUSK, n. *mŭsk* [F. *musc*, musk—from mid. L. *muscum;* Gr. *moschos;* Ar. *mesk;* It. *muschio*, musk: Skr. *mushka*, a testicle]: a strong-scented substance obtained from an animal inhabiting central Asia, and contained in a bag situated on the belly of the male; a small musk-scented plant—the *Mim'ulus moschātus*, ord. *Scroph'ulārĭā'cĕæ*: V. to perfume with musk. MUSK'ING, imp. MUSKED, pp. *mŭskt.* MUSKY, a. *mŭsk'ĭ*, having the odor of musk. MUSK'INESS, n. *-ĭ-nĕs*, the quality of being musky; the scent of musk. MUSK DEER, etc. (see below).

MUSK, or MUSK DEER (*Moschus moschatus*): ruminant quadruped, type of the family *Moschidæ.* This family differs from *Cervidæ* (Deer) in the lack of horns, and in the long canines of the males, projecting beyond the lips. The M. is an inhabitant of the elevated mountainous regions and table-lands of central Asia. The habits of the M. are very similar to those of the Chamois. Its favorite haunts are the tops of pine-covered mountains, but its summer range extends far above the region of pines. Its habits are nocturnal and solitary, and it is extremely timid. It is much pursued by hunters for its odoriferous secretion, which has been known in Europe since the 8th c., and is much valued as a perfume. This secretion, *musk*, is produced in a glandular pouch in the hinder part of the abdomen of the males; and its natural use seems to be to increase sexual attractiveness. The musk-bag is formed by an infolding of a portion of the skin of the belly, within which a number of membranes are contained; and between these membranes are glands by which the musk is secreted. When newly taken from the animal, musk is soft, and almost resembles an ointment; it is reddish-brown, and has an excessively powerful odor. Very little of it reaches Europe or America unadulterated.—Musk is usually imported either in the form of *grain-musk*—that is, the musk which has been collected chiefly from stones upon which it has been deposited by the animal, in which state it is a coarse powder of a dark-brown color; or in the *pod*—that is, in the musk-sac, which is cut altogether from the animal, and dried with the musk inside. Of both kinds the importations are about 15,000 ounces per annum, chiefly from China and India. Small quantities are used in medicine, but the greater portion is employed by the perfumers. It is imported in small boxes or catties, often covered with bright-colored silk, and each containing 25 pods. The kinds generally known in trade are the Tonquin or Chinese, worth abt. $10 an ounce in the pod, or abt. $17 an ounce in grain; and the Cabardine, Kabardine, or Siberian, always imported in pod, and inferior, worth about $3.75 an ounce.

The flesh of the M. is sometimes eaten, but has a very strong flavor. The season of migration from the highest

and coldest to more temperate regions is that at which the M. is chiefly pursued.—No other animal of the family *Moschidæ* yields the perfume called musk, or has more than a rudimentary musk-bag. The other species of *Moschidæ* belong to the genus *Tragulus*, and receive the popular name *Chevrotain*. They have a very elongated muzzle; and the accessory hoofs assume the form of appressed conical claws. They inhabit the thick woody copses or jungles of the Indian islands, and are the smallest of ruminant quadrupeds: some are not larger than a hare. Their tusks are not so long as those of the M. One of them, the *Napu* of Java and Sumatra, has the smallest blood corpuscles of any known animal.

MUSK DUCK (*Cairina moschata*): species of duck, of



Musk Duck (*Cairina moschata*), Male and Female.

the non-oceanic section of *Anatidæ* (see DUCK); of a genus characterized by an elevated tubercle at the base of the bill, the edges of the mandibles sinuated, the face and lores covered with a bare tuberculated skin, the wings furnished with a knob or spur at the bend. The M. D. (called MUSCOVY DUCK through mistake, and receiving its name M. D. from its musky odor) is a native of warm parts of America. It is very plentiful in Guiana, in that part of the year which is winter in n. countries. It is larger than the common duck, in its wild state almost black, with glosses of blue and green, and white wing-coverts, but varies considerably in domestication. It is often seen in poultry-yards in other countries, but is rather curious than profitable. It hybridizes readily with the common duck, but the hybrid is sterile.—The M. D. of Australia is a very different species, belonging to the genus *Biziura*.

MUSKEGON, *mŭs-kē'gon:* city, cap. of Muskegon co., Mich.; near the mouth of the Muskegon river and on the Chicago and West Michigan, Grand Rapids and Indiana, and the Toledo Saginaw and Muskegon railroads; 4 m. from Lake Michigan, 38 m. n.w. of Grand Rapids, 90 m. n.w. of Lansing. It has the best harbor on the e. shore of Lake Michigan, has a daily line of steamers to Chicago, is a stopping-place for the e.-shore steam-boats, and is occupied chiefly with the manufacture and shipment of lumber, the annual shipments averaging about 300,000,000 ft., and employing about 150 vessels, besides large shipments by rail. The soil is rich, and much attention is given to peach and grape culture. M. had (1890, Mar.) 4 national banks (cap. $393,300), 1 state bank (cap. $50,000), 40 saw-mills, 15 churches, several foundries, machine-shops, railroad-shops, boiler-works, and planing-mills, and 2 periodicals. M. was settled 1836; incorporated 1870. Pop. (1870) 6,403; (1880) 11,262; (1890) estimated 20,000, suburban 5,000.

MUSKELUNGE, *mŭs'kĕ-lŭnj*, or MUSKALLONGE, *mŭs'-kal-lŏnj:* species of fish belonging to the *Esocidæ* or pike family (see PIKE); found in the St. Lawrence river, Lake Champlain, and some other N. Amer. waters. The name is applied sometimes to smaller but closely related species, of which the lake pickerel is one of the most common. It reaches a length of more than four feet and a weight of 40 to 60 pounds. It is caught with a hook or net, and is considered one of the best flavored fishes of its class.

MUSKET, n. *mŭs'kĕt* [mid. L. *muschetta*, a bolt shot from any old warlike instrument for casting stones: Prov. *mosquet;* F. *mouchet*; AS. *mushafoc*, a sparrow-hawk—the implements of shooting being commonly named after different kinds of hawks (e.g., falcon, falconet): It. *mosquetto;* OF. *mousquet*, a musket]: firearm or hand-gun formerly used by soldiers of the line (see below): a young male sparrow-hawk. MUSKET-PROOF, that cannot be injured or penetrated by a ball from a musket or hand-gun. MUS'KETEER', n. *kĕt-ēr'*, a soldier armed with a musket. MUS'KETOON', n. *-kĕt-ôn'* [F. *mousqueton*]: obsolete weapon; a short musket of very wide bore, carrying a ball of five oz., and sometimes bell-mouthed like a blunderbuss. MUSKETRY, n. *mŭs'kĕt-rĭ*, the art or science of firing small-arms; the firing of muskets, or a volley from them; hand-guns in general.

MUS'KET: firearm for infantry soldiers, which succeeded the clumsy arquebus, and in Britain 1851 gave way to the Enfield rifle, which, in its turn, was converted into Snider's patent breech-loading rifle, now known as the Snider-Enfield; the latter arm, so far as the navy, cavalry, and regular infantry are concerned, has been replaced by the Martini-Henry breech-loader, but the auxiliary forces still retain the Snider. The first muskets were matchlocks; after which came wheel-locks, asnaphans or snaphances, and flint muskets; and lastly, percussion muskets, a vast improvement in accuracy and lightness. Compared, however, to either the Enfield or Martini-Henry rifle, the musket, familiarly known as Brown Bess (possibly corruption of Ger. *büchse*, a hollow tube or gun), was a heavy, ugly, and ineffective weapon. The following is a table of the ranges attained, on an average, by the M., the Enfield, and the Martini-Henry:

	Musket. yds.	Enfield Rifle. yds.	Martini-Henry Rifle. yds.
Accurate fire	100	600	1,200
Effective against detached parties	150	800	1,500
Effective against troops in column	200	1000	1,800

See BREECH-LOADING GUNS: RIFLED ARMS: FIREARMS.

MUS'KETRY, SCHOOLS OF: institutions for instructing soldiers in the use of firearms: rendered necessary by the introduction of the Minié rifle in the French service, and the subsequent arming of the British troops with the still more delicate Enfield rifle, 1851. These changes made the accuracy of a soldier's fire an important element in his value, which with the old musket was not the case, as it was proverbial that the bullet never hit the point aimed at. The English govt. led in providing such instruction, at Hythe, 1854, where officers and promising men were sent for a course of a few weeks, returning to their corps as instructors to their comrades. Before the establishment of this school, the English stood low in the scale of shooting; but competitions during recent years at Wimbledon have shown them equal as marksmen to any nation. The Hythe school is superintended by a commandant and inspector-gen. of musketry instruction, with subordinate instructors. The inspector-gen. is responsible also for the instruction throughout the regiments all over the world, and to him the musketry returns from each regt. are sent annually.

MUSKINGUM, *mŭs-kĭng'gŭm*, RIVER: stream formed in e. central Ohio, by the junction of the Tuscarawas and Walhonding rivers at Coshocton, from which it flows s. and s.e. 115 m., to the Ohio at Marietta, being navigable from Dresden, and supplying important water-power at Zanesville and Marietta. The original settlement by the Ohio Company, 1787–8, was made in the rich valley of the M., and e. of it to the Ohio.

MUSK OX (*Bos moschatus* or *Ovibos moschatus*): animal of the family *Bovidæ*, regarded as a connecting-link between oxen and sheep, allied most closely to the sheep. It inhabits the most n. parts of Amer., enduring the winter even of Melville Island and Banks's Land; but, like many other animals, it is partially migratory, some individuals or herds seeking more s. regions and better pastures on the approach of winter, while some remain in the furthest north. It is not found in Greenland,

Musk Ox (*Bos moschatus*).

Spitzbergen, or Siberia. The M. O. is scarcely equal in size to the smallest of Highland cattle, but appears larger from the profusion of long matted woolen hair with which it is covered, and which hangs almost to the ground. The head also is covered with long hair, the face alone having short hair. Beneath the long hair there is a thick coat of exquisitely fine wool. The head is large and broad; the forehead convex; the extremity of the muzzle hairy. The horns are very broad at the base, and in the male meet on the forehead; they do not rise, but bend down on each side of the head, and curve out and up toward the tip, which tapers to a sharp point: they are about two ft. long measured along the curvature, and about two ft. in girth at the base, a pair of them sometimes weighing 60 lbs. The legs are short, and have short hair. The tail is very short, and covered with long hair, so that it is undistinguishable to the sight. The general color is brown. The female is smaller than the male, has shorter hair on the chest and throat, and smaller horns. The frog of the hoof is short, and partially covered with hair; the footmarks are very similar to those of the reindeer.—The M. O. feeds on grass, twigs, lichens, etc. It is fleet and active, very sure-footed on rocky ground, and ascends or descends very steep hills with great ease. It is gregarious; the herds generally number 30 or 40. The powerful horns are excellent weapons of defense against wolves and bears, which are often not only repelled but killed. When musk oxen are assailed by firearms, how-

ever, they generally huddle more and more closely together, and do not even seek safety by flight, so long as the assailants are unseen. The flesh is prized by the Esquimaux, but retains much of the strong musky odor which characterizes the living animal. The horns are used for various purposes; particularly the wide base for household vessels. The fine wool has been spun and woven into a fabric softer than silk. No attempt has yet been made to domesticate the M. O.; which, however, seems worthy of it, and suitable for all cold regions.

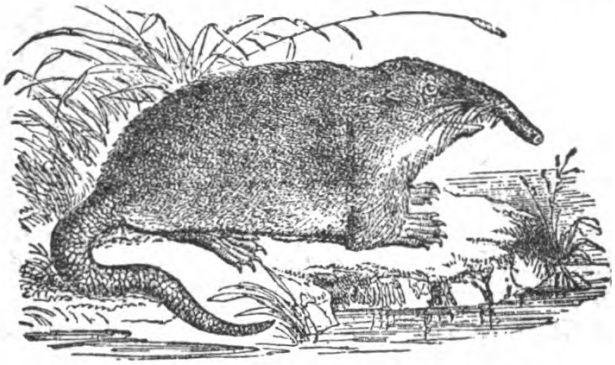
MUSK PLANT—MUSK ROOT—MUSK TREE—MUSK WOOD: plants whose different parts have more or less strong odor of musk. Among these are the common little Musk Plant (see MIMULUS), the Musk Tree of Van Diemen's Land (see ASTER), and the Musk Ochra (see HIBISCUS).—The musk-tree of Jamaica (*Moschoxylum Swartzii*) belongs to the nat. order *Meliaceæ*. It emits from all parts a smell of musk.—All parts of *Guarea grandifolia*, another tree of the same order, native of the W. Indies, sometimes called musk wood, also have strong odor of musk, particularly the bark, which is used in perfumery.—The drug called MUSK ROOT or SAMBUL is brought from the East, and is the root of a plant supposed to be of nat. order *Umbelliferæ;* but the plant is unknown, nor is it certain whether its native country is Persia, or some more remote region of cent. Asia. It has a pure musky odor, and is used as a substitute for musk.

MUSK RAT, of N. A.: see MUSQUASH.

MUSK RAT (*Sorex murinus*): Indian species of Shrew (q.v.), in size about equal to the common brown rat, in form and color resembling the common shrew, but remarkable for the powerful musky odor of a secretion which proceeds from glands on its belly and flanks. This odor adheres most pertinaciously to any object with which the animal may come in contact, and provisions are often utterly spoiled by it. Even wine and beer are said to be spoiled by it, notwithstanding the glass and cork of the bottle; though the probability is that it adheres to the outside of the bottle, and that the liquid is spoiled as it is poured out. One of the Indian names of this animal is *Sondeli.*

MUSK RAT, or DESMAN, *dĕs'man* (*Mygale* or *Galemys*): genus of insectivorous quadrupeds of the Shrew (q.v.) family (*Soricidæ*), differing from the true Shrews (*Sorex*) in having two very small teeth between the two large incisors of the lower jaw, and the upper incisors flattened and triangular. Behind these incisors are six or seven small teeth (lateral incisors or false canine teeth) and four jagged molars. The muzzle is elongated into a small flexible proboscis, which is constantly in motion. The eyes are very small; there are no external ears; the fur is long, straight, and divergent; the tail long, scaly, and flattened at the sides. All the feet have five toes, fully webbed; and the animals are entirely aquatic, inhabiting lakes and rivers, and making holes in the banks,

with the entrance from beneath the surface of the water. Only two species are known—one (*M.* or *G. Pyrenaica*) about eight in. long, with tail as long as the body, native



Musk Rat, or Desman (*Mygale Pyrenaica*).

of the streams of the Pyrenees; another larger species (*M.* or *G. moschata*), very plentiful in the Volga and other rivers and lakes of s. Russia, nearly equal in size to the common hedgehog, with tail about three-fourths of the length of the body. The Russ. desman is blackish above, whitish beneath; it has long silky hair, with a softer felt beneath, and its fur is held in some esteem. Desman skins, however, are chiefly valued for the musky odor, which they long exhale, derived from a fatty secretion produced by small follicles under the tail of the animal. The desman feeds on leeches, aquatic larvæ, etc., searching for them in the mud with its flexible proboscis. It seldom, if ever, voluntarily leaves the water, except in the interior of its burrows, which are sometimes 20 ft. long.

MUSLIN, n. *mŭz′lĭn* [F. *mousseline*—said to be from *Mosul*, in Asiatic Turkey, where first made: Venet. *musolin;* mod. Gr. *mousouli*, muslin]: fine thin cotton cloth of any kind: ADJ. made of muslin. MUS′LINET′, n.-*lĭn-ĕt′* [dim.]: coarser variety of muslin. MUSLIN-DE-LAINE: see MOUSSELINE-DE-LAINE.—*Muslin* is a cotton fabric of oriental origin, said to be named from the town Mosul, Mesopotamia, where it was largely manufactured. At present no such trade exists there; and for muslins, of the common kinds at least, the Indian market depends on the manufactures of western countries. But no European or Amer. manufacturer has been able to rival the wonderfully delicate muslins of Dacca, whose superiority arises not so much from the fineness of the yarn, though that is very great, but from the marvellous fineness conjoined with most delicate softness to the touch. The fineness of the yarn is so great, that until lately no machinery could produce anything like it; a piece of Dacca M. in the International Exhibition (1862) was 31 ft. in length by 3 ft. in width, and contained in a sq. inch 104 warp threads and 100 weft threads, yet the entire piece weighed only 3½ oz. A French manufacturer has made a M. of English yarn which surpassed the finest

Dacca in the excessive thinness of the yarn, but lacked its delicate softness. M. is much less compact in texture than calico—indeed, it more resembles gauze in appearance; but it is woven plain, without any twisting of the weft threads with those of the warp. The manufacture of muslins in Gr. Brit., France, and the U. S. is very extensive, especially printed muslins, in which the patterns are produced by the same processes as in calico-printing. See WEAVING.

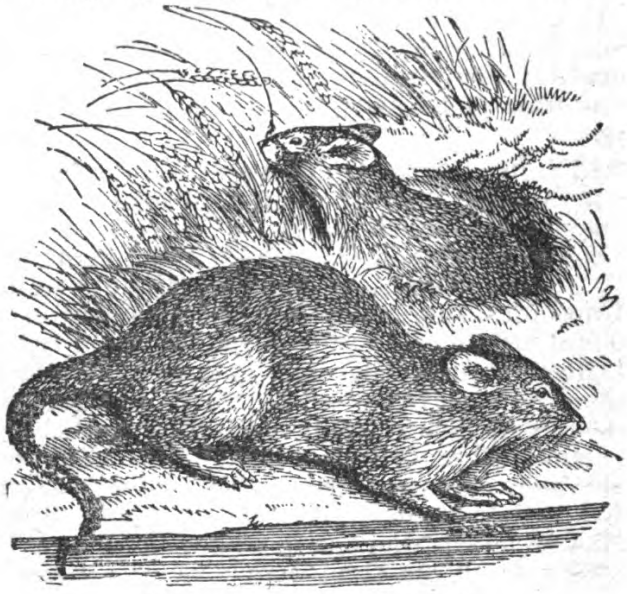
MUSMON, n. *mŭs'mŏn*, or MOUFFLON, n. *môf'lŏn* [L. *musmo;* Gr. *mousmōn*]: animal said to be the sheep in a wild state, and the parent of the domestic sheep, about the size of the common ram; still found in the mountains of Corsica and Sardinia. See MOUFFLON.

MUSNUD, n. *mŭs'nŭd* [Ar.]: a Mussulman throne or cushion of state.

MUSOPHAG'IDÆ: see PLANTAIN-EATER.

MUSPELHEIM, n. *mŭs'pĕl-hīm:* in *Scand. myth.*, the abode of fire, situated on the south, sparks from which formed the stars.

MUSQUASH, n. *mŭs'kwŏsh*, or MUSK RAT, or ONDATRA, *ŏn'da-tra* or *ŏn-dăt'ra* (*Fiber zibethicus*): rodent quadruped, native of N. A.; the only known species of the genus to which it belongs, which is characterized by dentition similar to that of the voles; in some other characters more nearly agreeing with the beaver. The M. is in



Musquash (*Fiber zibethicus*).

shape similar to the brown rat; the head and body are about 15 inches in length, the tail is 10 inches. The whole body is covered with short downy dark-brown fur, intermixed with longer and coarser hairs. It is common in almost all parts of N. A. from lat. 30° to lat. 69°, except in the s. alluvial districts. It is a very aquatic animal, seldom wandering from the rivers, lakes, or marshes in

which it makes its abode. The fur is in demand, and forms an article of commerce—skins in large number being still exported from Amer. to Britain and other European countries. The M. burrows in the banks of streams and ponds; the entrances of its burrows being always under water, so that it must dive to reach them. In marshes, the M. builds a kind of hut, collecting coarse grasses and mud, and raising the fabric two to four ft. above the water. The flesh of the M., at those seasons when it is fat, is in some request among the Amer. Indians, and is said to be palatable.

MUSQUITO, n. *mŭs-kē'tō:* see MOSQUITO.

MUSROLE, n., or MUSROL, *mūs'rōl* [OF. *muserolle*—from F. *museau;* OF. *musel*, a muzzle—from OF. *muse*, a mouth—from mid. L. *musus*, a muzzle]: the nose-band of a horse's bridle.

MUSS, n. *mŭs* [OF. *mousche*, a fly, a kind of game]: in *OE.*, name of a game; a confused struggle; a scramble.

MUSSEL, n. *mŭs'ĕl* [L. *muscŭlus*, a little mouse, the shell-fish (see MUSCLE, of which *mussel* is only another spelling)]: a well-known bivalve shell-fish (see below). MUSSEL-BAND, among *miners*, a thin layer or stratum of iron ore, almost wholly composed of shells resembling the existing mussels. MUSSEL-BEDS, areas, in tidal estuaries, occupied by the mussel.

MUS'SEL (*Mytilus*): genus of lamellibranchiate mollusks, type of the family *Mytilidæ*, which, however, is much more restricted than the Lin. genus *Mytilus*. The *Mytilidæ* belong to the division *Lamellibranchiata*, called by Lamarck *Dimyaria*, having two *adductor* muscles—muscles employed in closing the valves of the shell. The mantle has a distinct anal orifice; the foot is small; and there is a large *Byssus* (q.v.), divided into fibres to its base. The valves of the shell are equal; the hinge is destitute of teeth. Some, but few, of the species are found in fresh-water. See DREISSENA. Some (*Lithodomus*) burrow in stone. How they do it is utterly unknown, but they burrow even in the hardest stone; and some small tropical species excavate for themselves holes in the shells of great limpets. The *Lithodomi* are sometimes called *Date-shells*. Some are very beautiful, as are also the true mussels, after the epidermis is removed. Even the COMMON M, (*M. edulis*) then exhibits beautiful veins of blue. This species is much used as bait by fishermen. It is gregarious, and is found in vast beds, closely crowded, adhering by the byssus to rocks, etc. These beds are usually uncovered at low-water. The shell is oblong; at its greatest size about three in. long, and an inch and a half broad. Mussels, when young, move about by means of the foot, with which they lay hold of objects and drag themselves along, until they find some suitable spot to anchor themselves by a byssus. If detached, they soon find another anchorage. In an aquarium they readily attach their byssus-threads even to the smooth glass, and the threads

may be broken more easily than separated from the glass. An ingenious and important application of the strength of these threads has been made by the French, to render Cherbourg breakwater more secure by binding the loose stones together, for which purpose it was *planted* with tons of mussels. The Common M. (Sea-M.) is much used in Europe as food, and is generally found quite wholesome; yet it sometimes proves poisonous, particularly in spring and summer, causing either blotches, swellings, and an eruption, accompanied with asthma, or a kind of paralysis; and even in rare cases producing delirium and death. Though regarded on the Atlantic seaboard of Europe as little inferior to the oyster, this mussel (*Mytilus edulis*) is scarcely used on the Amer. coast either as food or as bait—the soft clam being used in its stead. For the FRESHWATER MUSSEL, see that title.

MUSSELBURGH, *mŭs'sĕl-bŭr-rŭh:* small seaport and royal and parliamentary burgh of Scotland, county of Edinburgh, at the mouth of the Esk, 6 m. e. of Edinburgh. On the w. side of the Esk is the fishing village of Fisherrow. Tanning, leather-dressing, and manufacture of sail-cloth, nets, and salt are carried on. The harbor at Fisherrow is frequented by coasting craft, and by small vessels from Holland and the Baltic. Timber, oil-cake, bark, seeds, and hides are imported; coal is the chief export. On the 'links,' a famous golfing ground, the Edinburgh races take place annually. Pop. (1881) 7,865.

MUSSET, *mü-sā'*, LOUIS CHARLES ALFRED DE: French poet of the first rank: 1810, Dec. 11—1857, May 2; b. Paris; of anc. family. He studied in succession medicine, law, finance, and painting; but finally, under the influence of the Romantic School (q.v.), turned to poetry. The first work that attracted notice was *Les Contes d'Espagne et d'Italie* (1830), which by their elegant but audacious sensuousness gave deep offense. *Le Spectacle dans un Fauteuil* (1832) is a strange medley of contrasts. *Les Nuits* (1840) admittedly show his lyrical power at its best. Many of the *Comédies et Proverbes* were popular on the stage; and M. wrote several prose romances. In 1852 he was admitted to the French Acad. He died at Paris. The exquisite beauty, tenderness, and power of much of M.'s work is continually marred by the morbid pessimism of a man prematurely old, disillusioned, *blasé;* on this very ground M. is often regarded as the representative poet of the modern Parisian. M.'s life was irregular, and he suffered from heart-disease: probably his genius was thus hampered, and his reputation as a writer lowered during his life. Since his death leading critics have accorded him a place with the most eminent French poets.

MUSSULMAN, n. *mŭs'ŭl-mân*, MUSSULMANS, n. plu. *-mânz* [Turk. *musslim*, a follower of *Islam*, a true believer —from Ar. *salam*, meaning peace or rest: *musslimin* or *musstiman*, Moslems]: follower of Mohammed; true be-

liever in Mohammed. M. is equivalent to Moslem, of which word it is, properly speaking, the plu.; used in Persian fashion for the sing., so that the Eng. plu. *Mussulmans* is really a double plural. This Arabic plural termination 'án' has nothing to do with the Eng. word *man;* hence an Eng. plu. in *men* is barbarous and absurd. MUS'SULMAN'IC, a. *-măn'ĭk,* pert. to. MUS'SULMANLY, ad. *-lĭ.*

MUST, v. *mŭst* [AS. *motan;* Ger. *müssen;* Dut. *moeten,* to be forced: Sw. *maste,* must: Bohem. *musyti,* to be forced to do]: an auxiliary verb which implies 'necessity or obligation.'

MUST, n. *mŭst* [L. *mustum;* F. *moust,* the juice of grapes, new wine: Russ. *mest;* Ger. *most,* juice of fruits: Sw. *must,* juice, sap]: the unfermented juice of ripe grapes; new wine.

MUSTACHE, n. *mŭs-tâsh',* MUSTACH'ES, n. plu. *-tâsh'ĕz* [see MOUSTACHE]: hair on the upper lip. MUSTACHED, a. *mŭs-tâsht',* having mustaches. MUSTACHIO, n. *mŭs-tâsh'ō* [Sp. and It. *mustacchio*]: hair of the upper lip—another spelling of *mustache.* MUSTACH'IOED, a. *-ōd,* having mustachios.

MUSTANG, n. *mŭs'tăng:* the wild horse of the prairies of Mexico, California, etc., small and hardy: see HORSE.

MUSTARD, n. *mŭs'tĕrd* [OF. *mostarde;* F. *moutarde,* mustard: Venet. *mostarda,* a sauce: Sp. *mostaza,* thickened must; *mostazo,* mustard], (*Sinapis*): genus of plants of nat. order *Cruciferæ,* having yellow flowers, and linear or oblong pods, which terminate in a sword-shaped and compressed or 4-cornered beak, and contain one row of seeds. The seeds are globular, and their Cotyledons (q.v.) conduplicate.—The most important species is BLACK M. (*S. nigra*), an annual, which grows wild in fields and by waysides. Its pods are bluntly 4-angled, smooth, erect, and lie close to the stem, their valves 1-nerved; the leaves are smooth, the lower leaves lyrate, the upper leaves linear-lanceolate. The seeds are brownish black.—WHITE M. (*S. alba*) is an annual, having divergent pods covered with stiff hairs, the valves 5-nerved, the seeds yellowish, the leaves pinnatifid.—Both these species are cultivated for their seeds, which are ground into powder and mixed with water, to make the well-known condiment called *Mustard.* The powder of the seeds is much used also in medicine as a rubefacient. The use of M. as a condiment is often found favorable to digestion. M. seeds depend for their pungency on a principle which, when water is added to Black M., forms *Volatile Oil of M.* (See MUSTARD, OIL OF.) There is also in the seeds a bland fixed oil, *Oil of M.,* obtained from them by expression, and constituting about 28 per cent. of their weight. The cake which remains after the oil is expressed is too acrid to be freely used for feeding cattle. It is Black M. chiefly which is cultivated, its seed being more pungent and powerful than that of White M.; but there is more difficulty in removing the

skin of its seed than that of White M., which is therefore often preferred. M. requires very rich soil. Wisbeach, in Cambridgeshire, is the great M. market of England.—White M. is often sown in gardens and forced in hothouses, to be used in the seed-leaf as a small salad, having a pleasant pungency. It is also sometimes sown for feeding sheep, when turnip or rape has failed, being of very rapid growth, though inferior in quantity of crop. —WILD M., or CHARLOCK (*S. arvensis*), distinguished by turgid and knotty pods with many angles, and longer than the two-edged beak, is a most troublesome annual weed in corn-fields, often making them yellow with its flowers in the beginning of summer. Its seeds are said to have yielded the original *Durham M.*, and are still gathered for mixing with those of the cultivated species. The bland oil of the seeds is used for lamps.—PEKIN M. (*S. Pekinensis*) is an annual, very extensively cultivated in China, its leaves being used as greens. It is quite hardy in the climate of Britain.—INDIAN M. (*S. ramosa*) is extensively cultivated in India for its seeds, which are used as condiment; as are those of *S. dichotoma* and *S. glauca*, also cultivated in India. The oil of the seeds is used throughout India for lamps.—HILL M. is a different genus, *Bunias* (q.v.).—The M. TREE of Scripture is supposed by some investigators to be *Salvadora Persica*, a small tree of nat. order *Salvadoraceæ*, a small order allied to *Myrsinaceæ:* it grows to a height of 25 to 30 ft., and abounds in many parts of the East. Its seed has an aromatic pungency, and is used like mustard. The fruit is a berry with a pungent taste. But some eminent writers dissent, on what seem good grounds, from this view, and consider the M. Tree of Scrip. (Matt. xiii. 31; Mk. iv. 31; Lk. xiii. 19, etc.) to be one of the varieties of the M. plant (*Sinapis*), deeming this to agree better with the terms of Christ's parable. To the objection that this plant is a low bush and no tree, Prof. Henry B. Hackett replies that he saw it growing extensively in Palestine to a height of 8 or 9 ft., and furnishing resting-place for birds.

Manufacture.—The manufacture of M. consisted originally, and indeed on the Eur. continent consists still, in simply grinding the seed into a very fine meal. A false taste, however, arose for an improved color, and the flour of mustard was introduced, in which only the interior portion of the seed is used, the husk being separated, as the bran is from wheaten flour. This causes great loss of flavor, as the pungent oil, on which the flavor chiefly depends, is in greatest abundance in the husk.—Hence other materials, such as capsicum powder, and other very pungent matters, are added to bring up the flavor, and wheaten flour and other substances are added to increase the bulk and the lightness of color. Indeed, so many adulterations have been added, that the M. of Eng. and Amer. tables can no longer be regarded as other than an elaborately compounded condiment, for which each manufacturer has his own particular recipe.

MUS'TARD, OIL OF: essential oil yielded by distillation of the seeds of Black Mustard with water (see MUSTARD); in reality, allyl isothiocyanate, $N(CS)(C_3H_5)$ (see GARLIC, OIL OF), contaminated with a little brown resinous matter, from which it may be freed by simple redistillation. The seeds both of the black and the white mustard yield by expression a large quantity of a bland fixed oil, but they do not contain any essential or volatile oil ready formed.

When first obtained, this oil is a colorless fluid, which gradually becomes yellowish. It has a painfully pungent odor and acrid taste; and when applied to the skin, it speedily raises a blister. It is soluble in all proportions in alcohol, but dissolves very sparingly in water. Its specific gravity is 1.009 at 59° F.; it boils at 298·4° F. This oil and oil of garlic, $(C_3H_5)_2S$, are naturally convertible into one another (see GARLIC, OIL OF); in combination with ammonia it forms a compound termed *thiosinnamine*, $N_2H_3(C_3H_5)(CS)$ which combines directly with acids like a true organic base. Its mode of formation is explained by the equation—

$$\overbrace{C_6H_5,C_2NS_2}^{\text{Oil of Mustard.}} \quad \overbrace{NH_3}^{\text{Ammonia.}} \quad = \quad \overbrace{C_8H_8N_2S_2}^{\text{Thiosinnamine.}}$$

By digesting oil of mustard with alkalies, or with hydrated oxide of lead, we obtain also a feeble base termed *sinapoline*, whose formula is $C_7H_{12}N_2O$.

The oil is formed in much the same way as the Volatile Oil of Almonds (q.v.). The black mustard contains the potash salt of a compound termed *myronic acid*, and a peculiar coagulable nitrogenous ferment, *myrosin*, which, when the crushed seed is moistened with water, act on each other, and develop the oil. It is the gradual formation of this oil, when powdered mustard and warm water are mixed, that occasions the special action of the common mustard poultice. The pungency as a condiment of mustard, of horse-radish, etc., is due mainly to the presence of this oil.

MUSTEE, n. *mŭs'tē:* in the *Indies*, the child of a white and a quadroon.

MUSTELIDÆ, *mŭs-tĕl'ĭ-dē:* family of digitigrade Carnivora (q.v.), mostly forming the genus *Mustela* of Linnæus; now divided into a number of genera, in which are ranked the weasel, ermine or stoat, sable, marten, ferret, pole-cat, mink, skunk, etc. The M. are distinguished by elongated form of the body and shortness of limbs; also by having generally four or five molars on each side in the upper jaw, and five or six in the lower. On each side of both jaws there is a single tuberculate tooth. All the feet have five toes. The skull is much elongated behind the eyes. The M. have great litheness and suppleness of movement. They are very carnivorous. Otters are ranked among them.

MUSTELINE, a. *mŭs-tēl'īn* [L. *mustēlă*, a weasel]: pertaining to animals of the weasel kind.

MUSTER, n. *mŭs'tĕr* [Ger. *mustern*, to muster or review: OF. *monstrer*, to show: OF. *mostre* for *monstre*, a view, a sight: It. *mostra*, a show, a review; *mostrārĕ*, to show—from L. *monstrārĕ*, to show]: assembling of troops or sailors for review and personal inspection; any assembling or gathering; act of collecting: V. to collect or assemble for military duty or review; to assemble troops for individual inspection and verification; to bring together; to assemble. MUS'TERING, imp. MUS'TERED, pp. *-tĕrd*, assembled or gathered together. MUSTER-BOOK, a book in which troops are registered. MUSTER-ROLL, an authorized list of the officers and men in a company, regiment, etc. MUSTER-MASTER, one who superintends a muster of troops. TO MUSTER UP, to gather or obtain with some effort. TO PASS MUSTER, to pass inspection without censure or blame.—A *Muster* is a calling of the names of all the men composing a regt. or a ship's company. Each man present answers to his name, those not answering being reported absent. The muster-roll from which the names are called is the paymaster's voucher for the pay that he issues, and must be signed by the commanding officer, the adjutant, and himself. The crime of signing a false muster-roll, or of personating another individual at a muster, is held most severely punishable. In regiments of the line, a muster is taken usually each month; in ships of war, usually each week. The muster after a battle is a melancholy proceeding, intended to show the vacancies wrought by death. In early times, in Europe, before the army was a standing force, and when each capt. was a sort of contractor to the crown for so many men, the muster was most important, as the only security that the sovereign had for really obtaining the services of the number of men for whom he paid. Accordingly, any fraud brought liability to punishment by death.

MUSTY, a. *mŭs'tĭ* [Gael. *musg*, matter that gathers round the eyes; *musgach*, moldy: prov. Dan. *musken*, musty]: spoiled with damp, mold, or age; having an ill flavor or smell; stale; dull; heavy. MUS'TILY, ad. *-tĭ-lĭ*. MUS'TINESS, n. *-nĕs*, the quality of being musty or ill-flavored. *Note.*—MUSTY may be derived from *must*, new wine, referring to the smell of the vessel after being emptied of its contents. Chaucer uses *moisty* with respect to ale, meaning 'new ale'—see Skeat.

MUTABLE, a. *mū'tă-bl* [L. *mutābĭlis*, that is easily or often changed—from *mūtō*, I change: It. *mutabile*]: subject to change; changeable; alterable; unsettled; inconstant. MU'TABLY, ad. *-tă-blĭ*. MU'TABLENESS, n. *-bl-nĕs*, or MU'TABIL'ITY, n. *-bĭl'ĭ-tĭ* [F. *mutabilité*]: the quality of being mutable; changeableness; instability. MUTATION, n. *mū-tā'shŭn*, change; alteration.—SYN. of 'mutable': variable; fickle; versatile; unstable; unsteady; wavering; irresolute.

MUTAGE, n. *mū'tāj* [F. *muter*, to improve with sulphur, said of wine—from L. *muto*, I change]: the process of sulphuring grape-must to prevent or arrest fermentation.

MUTCHKIN, n. *mŭch'kĭn* [Scot.]: a Scotch liquid measure, equal to four gills, or an imperial pint.

MUTE, n. *mūt* [F. *mutir*, to mute, as a hawk; *esmeut'* the droppings of a bird: Icel. *smelta*, to liquefy]: dung of birds: V. to cast out the contents of the bowels, as birds. MUTING, imp. *mū'tĭng*: N. the dung of birds. MU'TED, pp.

MUTE, a. *mūt* [L. *mutus*, silent, speechless—imitative of the attempt to mutter low sounds, represented by *mu*: Serv. *muk*, silent; *muchati*, to be silent: It. *muto*: F. *muet*]: silent; uttering no sound; not having the power of utterance; not sounded, as a letter: N. one naturally unable to speak; one remaining wilfully silent; in *gram.*, applied to those consonants which intercept the voice in utterance, as *k*, *p*, and *t*: an attendant at a funeral: in *Turkey*, a dumb attendant; an executioner who is a dumb man. In *music*, little instrument of wood or brass used on a violin or violoncello, to soften or deaden the sounds. It is made of hard-wood, ivory, or brass, and is attached to the bridge by means of a slit, a leg of it being interjected between every two strings. The use of the mute both softens the tone and imparts a peculiar muffled and tremulous quality sometimes very effective. Its application is indicated by the letters *c. s.*, or *con sordino*, and its discontinuance by *s. s.*, or *senza sordino*. The mute is used sometimes for the cornet also, being inserted into the bell of the instrument, subduing the sound, and producing the effect of great distance. MUTELY, ad. *mūt'lĭ*, in a mute manner; silently. MUTISM, n. *mū'tĭzm*, the condition of being unable to give utterance to articulate sounds; the total want of speech.—SYN. of 'mute, a.': dumb; speechless; unpronounced; unvocal.

MUTICUS, a., or MUTICOUS, a. *mū'tĭ-kŭs* [L. *mŭtĭcus*, without a beard or awn]: in *bot.*, without any pointed process or awn; pointless.

MUTILATE, v. *mū'tĭ-lāt* [L. *mutĭlātus*, maimed or mangled: Gr. *mutĭlos*, curtailed: It. *mutilare*: F. *mutiler*]: to maim or mangle; to cut off any important or material part; to render imperfect; to garble or only partially represent; to castrate. MU'TILATING, imp. MU'TILATED, pp.: ADJ. maimed or mangled. MU'TILATOR, n. *-lā-tĕr*, one who mutilates. MU'TILA'TION, n. *-lā'shŭn* [F.—L.]: the act of depriving of a limb or an essential part; the state of being mutilated.—SYN. of 'mutilate': to hack; cut; cripple; destroy; mangle; castrate.

MUTINE, n. *mū'tĭn-ē*: OE. for MUTINEER.

MUTING: see MUTE 1.

MUTINIED, MUTINOUS: see under MUTINY.

MUTINY, n. *mū'tĭ-nĭ* [OF. *mutiner*, to mutiny or rise in arms—from *mutin* for *meutin*, turbulent, unquiet—from *meute* (*émeute*), a sedition—from L. *moveo*, I move: comp. Dut. *muyten*, to mutter, to murmur; L. *mutio*, a muttering]: in the *army* or *navy*, a refusal of obedience to lawful authority by a subordinate; insurrection of soldiers or sailors against their officers: V. to rise in insurrection against the authority of their officers, or against the head of the state, by soldiers or sailors. MU'TINYING, imp. MU'TINIED, pp. *-nĭd*. MU'TINEER', n. *-nēr'*, one who mutinies. MU'TINOUS, a. *-nŭs*, disposed to or guilty of mutiny; seditious. MU'TINOUSLY, ad. *-lĭ*. MU'TINOUSNESS, n. *-nĕs*, the state of being mutinous; a spirit of insubordination to superiors.—*Mutiny* is the term used to denote behavior either by word or by deed subversive of discipline, or tending to undermine superior authority. Till lately, M. in Britain comprised speaking disrespectfully of the sovereign, royal family, or general commanding, quarrelling, and resisting arrest while quarrelling; but these offenses have now been reduced to the less crime of 'mutinous conduct.' The acts now constituting M. proper are: exciting, causing, or joining in any M. or sedition; when present thereat, failing to use the utmost effort to suppress it; when, knowing of a M. or intended M., failing to give notice of it to the commanding officer; striking a superior officer, or using or offering any violence against him, while in execution of his duty; disobeying the lawful command of a superior officer. The punishment awarded by the Mutiny Act (q.v.) to these crimes is, if the culprit be an officer, death or such other punishment as a general court-martial shall award; if a soldier, death, penal servitude for not less than four years, or such other punishment as a general court-martial shall award. The U. S. laws on this subject are similar in general principles to those of Gr. Britain. As the crime of M. has a tendency immediately to destroy all authority and all cohesion in the naval or military body, commanding officers have full powers to stop it summarily. A drum-head court-martial may sentence an offender, and if the case be urgent, and a spread of the M. apprehended, the immediate execution of sentence of death on the mutineer may follow within a few minutes of the detection of his crime. It, however, behooves commanding officers to exercise this extraordinary power with great caution, as the use of so absolute an authority is narrowly and jealously watched. Officers are held under obligation to use all reasonable measures to prevent discontent among their men from rising into mutiny.—See MILITARY LAW: COURT-MARTIAL.—SYN. of 'mutiny', insurrection; sedition; rebellion; revolt; revolution; uprising; uproar; strife.

MU'TINY ACT: former annual or semi-annual act of the British parliament, investing the crown from year to year with powers to regulate the govt. of the army and to frame articles of war. The navy stands under Naval Discipline Acts, 1861 and 66, successors of acts which, unlike the M. A., remained in force for an indefinite time. By the Bill of Rights, the maintenance of a standing army in time of peace, unless by consent of parliament, was declared illegal, and from that time the number of troops to be maintained, and the cost of the different branches of the service, have been regulated by an annual vote of the house of commons. But parliament possesses a further control over the army. Soldiers, in time of war or rebellion, being subject to martial law, may be punished for mutiny or desertion; but the occurrence of a mutiny in certain Scotch regiments, soon after the Revolution, raised the question, whether military discipline could be maintained in time of peace; and the courts of law decided that, in the absence of any statute to enforce discipline, a soldier was amenable only to the common law: if he deserted, he was liable only for breach of contract; or if he struck his officer, to an indictment for assault. The authority of the legislature became indispensable to the maintenance of discipline; and parliament, 1689–1879, at the beginning of every session, conferred anew this and other powers in the M. A. The act, having long been found defective and cumbrous, was superseded by vote of parliament 1879 by an act, also to be passed annually as the 'Army Discipline and Regulation Act.'

MUTISM: see under MUTE 2.

MUTSUHITO, or MUTS-HITO, *môts-hē'to*, Emperor of Japan: 123d mikado: b. 1850, Nov. 3; 2d son of the mikado Komei Tennō (1847–67). He has no family name, and his titular name means 'man of peace.' He grew up in the seclusion of the palace; at 19 years of age had never seen a foreigner; was declared emperor at his father's death, with a regent in charge of the govt. The regency was overthrown by a movement of an advanced party under the lead of Iwakura and his associates; a new govt. was proclaimed, with M. as active mikado; and the office of 'Tycoon' was abolished by a decree 1868, Feb. 4. On Mar. 23, M. gave an audience to the ministers of France and Holland, the first that an emperor of Japan ever granted to representatives of any Christian nation. On the occasion of a similar audience sought by the British minister, Sir H. S. Parker, an attack on his attendants was made by assassins. The following day an imperial decree declared the outlawry of all such fanatics, and definitely promulgated the new era of open relations of Japan, by treaty and diplomatic intercourse, with foreign nations. April 6, in the great hall of the castle of Nijo in Kioto, the mikado took an oath promising government by public discussion, the disuse of 'the uncivilized customs of former times,' the

search throughout the world for learning and the means of intellectual advancement, and whatever would bring Japan into the path of modern civilization. The national cap. was removed to Tokio 1869, Feb. 7, and shortly afterward M. married Ichijo Tadaka, a lady of the 2d degree of the first rank of the nobility. In 1872 he adopted European dress and habits of life; and 1873 began the introduction of a system of education under a supt. from the United States (see MURRAY, DAVID). The progress of change to the present time has been constant and healthy.

MUTTER, v. *mŭt'tĕr* [L. *muttīrĕ*, to mutter, to utter low sounds: comp. Swab. *mottern*, to make sour faces: Gael. *muchadh*, speaking or singing in a low tone]: to speak in a low tone with compressed lips; to speak in low indistinct tones; to murmur; to grumble; to give out a low rumbling noise: N. an obscure or imperfect utterance; a murmur. MUT'TERING, imp.: ADJ. uttering words in low suppressed tones. MUT'TERED, pp. *-tĕrd:* ADJ. uttered in low suppressed tones. MUT'TERER, n. *-tĕr-ĕr*, one who mutters. MUT'TERINGLY, ad. *-lĭ*.

MUTTON, n. *mŭt'n* [F. *mouton*, a wether, a sheep—from mid. L. *multonem:* Ir. and Manx, *molt;* Gael. *mult;* W. *mollt*, a wether, a sheep]: the flesh of sheep. MUTTON-CHOP, a rib chopped from the loin. MUTTON, *OE. slang*, a bawd, a whore. MUTTON-MONGER, a whoremonger. MUTTON-FIST, a large, red, brawny hand.

MUTTRA, *mŭt'trâ*, or MATH'URA: town of British India, cap. of a dist. in N. W. Provinces, 97 m. s.s.e. of Delhi; on the right bank of the Jumna. The fort was built by the famous astronomer, Jey Singh (who became Prince of Amber 1693); and on the roof of one of the apartments is a ruinous observatory, containing a great number of astronomical instruments. Access to the river—which, with the town, is considered sacred by the Hindus—is by numerous ghâts, ornamented with little temples; and its banks are, every morning and evening, crowded by devotees of all ages and both sexes, to perform their religious exercises. In Hindu Myth., it is regarded as the birthplace of the divinity Krishna. In honor of the monkey-god Hanumân (q.v.), monkeys are here protected and fed, being allowed to swarm everywhere. There are also great numbers of paroquets, peacocks, and sacred bulls at large, without owners. There is a very extensive military cantonment about a mile s. of the town. M. appears at an early period to have been much more important than it is at present; and its enormous wealth and splendor made it an object of attack to the first Afghan invaders. Mahmûd of Ghiznei, 1017, gave it up to plunder, breaking down and burning all th idols, and amassing a vast quantity of gold and silver, of which the idols were made. After this calamity, it sank into comparative obscurity. In 1803, it was, without resistance, occupied by the British troops. Pop. (1881) 47,483.

MUTUAL, a. *mū'tū-ăl* [F. *mutuel;* Sp. *mutual*—from mid. L. *mutŭālis*—from L. *mūtŭus*, equal on both sides]: interchanged; given and received; each acting in return or correspondence to the other; reciprocal. MU'TUALLY, ad. *-lĭ.*—SYN. of 'mutual': common; correspondent; alternate.

MU'TUAL INSTRUCTION: see MONITORIAL SYSTEM.

MUTULE, n. *mū'tūl* [F. *mutule*, a corbel, a bracket]: in *arch.*, plain projecting block worked under the corona of the Doric cornice, in the same situation as the modillions in the Corinthian and composite orders, and having a number of guttæ or drops worked on the under side (see ENTABLATURE). MU'TULED, a. *-tūld* ornamented with mutules.

MUTUUM, *mū'tū-ŭm:* term in Scotch law, from the Roman law, denoting a contract of loan of a certain kind of things, e.g., corn, wine, money, which are consumed in the use, and of which the borrower is bound to restore as much at some future time.

MUZA IBN NOSEYR: Arab conqueror of Spain: 640–717. He displayed great bravery and high military talents in the contests of that turbulent period, and was appointed by the caliph gen. of the army raised for the conquest of Africa 698–9. In 707 he set out for Mauritania, conquering the kindred tribes of e. Barbary, and enrolling their warriors under his standard; and by 709 the whole of n. Africa, including the Gothic strongholds on the coast, acknowledged the authority of the caliph. At this period the Gothic monarchy in Spain was in utter disorganization, and M., seizing the favorable opportunity, sent his lieut., Tarik Ibn Zeiad, 711, Apr., to make an incursion into Spain. Tarik landed at Gibraltar, and marched inland to the banks of the Guadalete, where he was met by Roderic, the Gothic king. In the battle which ensued, the Goths were decisively vanquished, their king perished in the waters of the Guadalete, and the whole of s. Spain lay at the mercy of the victor. M., hearing of these successes, sent orders to Tarik to halt for further instructions; but the lieut., flushed with success, pressed on to the very centre of Spain, and seized Toledo, cap. of the Gothic kingdom. M. immediately set out for Spain at the head of 18,000 men (712, June), took Seville, Carmona, Merida, and other towns, and then marched on Toledo, where he joined Tarik, whom he caused to be bastinadoed and incarcerated, but afterward reinstated in obedience to an order from the caliph. M. then marched first n.w. and then e., subduing the country; he then crossed the Pyrenees into France, but soon returned to Spain, where he and Tarik received messages from the caliph, commanding their immediate presence at Damascus; Tarik immediately obeyed, but M. delayed till a second message was sent to him. On reaching Damascus, he was treated with neglect, and, on the accession of the Caliph Suleiman, was cast into

prison, and mulcted in 200,000 pieces of gold; his two sons were deprived of their governments of Kairwan and Tangier; and the third son, who governed Spain in his father's absence, was beheaded, and his head sent to Muza. M. died soon after in the greatest poverty, at Hedjaz.

MUZZLE, n. *mŭz'l* [F. *museau*, the muzzle—from OF. *musel*, the muzzle—from *muse*, a mouth: It. *muso*, the muzzle or snout of a beast: It. *musoliera*, a muzzle: F. *muselière*, a muzzle or provender-bag]: the projecting nose and mouth of an animal; a snout; a depreciatory term for the jaws and mouth; a fastening or cover for the mouth of a dog, etc., to prevent biting; the open end of a tube, as of a gun: V. to put a muzzle on, as a dog; to restrain from doing mischief. MUZZ'LING, imp. *-lĭng*. MUZZ'LED, pp. *-ld*, having the mouth fastened to prevent eating or biting.

MUZZY, a. *mŭz'zĭ* [Low Ger. *muddig*, muddy]: *familiarly*, bewildered; confused with drink: see MUDDLE.

M'WANGA, King of Uganda, Africa, succeeding, 1885, his father Mtesa. Irritated and alarmed by the visits of missionaries and explorers, he ordered a massacre of the foreigners in his dominions. Among the victims of this massacre were Bp. Hannington, Chh. of England missionary, and all but four of his party of 50 persons. M. was dethroned by an Arab force led by his brother Kalema. During his period of exile he professed conversion, and, by the aid of foreign and native Christians, was reinstated king 1889, Oct. 12. In a few weeks he was again deposed by his brother and the Arabs, but placing himself under British and German protection he was returned to the throne, his brother being killed and the Arabs dispersed. While nominally Rom. Cath., he adheres to many heathen customs. He has (1890) made various grants to the representatives of the British and German govts., by whom the affairs of his kingdom are largely controlled, and his power for evil is greatly curtailed.

MY, pron. *mī* [AS. *min*, my (see MINE)]: one of the possessive forms of the personal pron. I, the other being *mine*—*my* is properly used before a word beginning with a vowel or a consonant, and *mine* before a vowel only; in common usage *my* is put before the noun, but *mine* follows it, and usually stands alone, as, this is *my* coat, that coat is *mine*.

MYADÆ, n. plu. *mī'ă-dē*, or MYACIDÆ, n. plu. *mī-ăs'ĭ-dē* [Gr. *muax* or *mūăka*, the common edible mussel]: in *zool.*, a family of mollusks known as the gaping bivalves.

MYALGIA, n. *mī-ăl'jĭ-a* [Gr. *mus*, a muscle; *algos*, pain]: muscular pain; cramp. Forms of M. are soreness and stiffness produced by over-exertion. There is a thoracic and a diaphragmatic Myalgia.

MYCELIUM, n. *mī-sē'lĭ-ŭm*, MYCE'LIA, n. plu. *-lĭ-ă* [Gr. *mukēs*, a mushroom, a fungus], in Botany: development of vegetable life peculiar to *Fungi*, but apparently common to all the species of that order. The *spawn* of mushrooms is the M. The M. appears to be a provision for the propagation of the plant where its spores may not reach, its extension in the soil or matrix in which it exists, and its preservation when circumstances are unfavorable to its further development. It consists of elongated filaments, simple or jointed, situated either within the matrix or upon its surface. It is often membranous or pulpy. The development of the fungus in its proper form seems to be ready to take place, in proper circumstances, from any part of the M. Fungi often remain long in the state of M., and many kinds of M. have been described as distinct species and formed into genera.—Liquors in which the flocculent M. of a fungus is spreading are said to be *mothery*.

MYCENÆ, *mī-sē'nē:* very ancient city in the n. of Argolis, in the Peloponnesus, upon a craggy height. It is said to have been founded by Perseus, was the cap. of Agamemnon's kingdom, and at that time the principal city in Greece. About B.C. 468, it was destroyed by the inhabitants of Argos, and never rose from its ruins to anything like its former prosperity. In Strabo's time its ruins only remained; these are still seen in the neighborhood of Kharvati, and are specimens of Cyclopean architecture. The most celebrated is the 'Gate of Lions,' chief entrance to the ancient Acropolis. Excavations prosecuted at M., by Dr. Henry Schliemann, brought to light, 1876, several ancient tombs, containing a large quantity of gold and silver ornaments, etc.

MYCE'TES: genus of S. Amer. monkey: see HOWLER.

MYCOLOGY, n. *mī-kŏl'ŏ-jĭ* [Gr. *mukēs*, a fungus; *logos*, a discourse]: the study of the fungi or mushrooms, or a description of them. MYCOL'OGIST, n. *-jĭst*, one versed in mycology. MYCOLOGIC, a. *mī'kō-lŏj'ĭk*, or MY'COLOGICAL, a. *-ĭ-kăl*, relating to.

MYDRIASIS, n. *mī-drī'a-sĭs* [Gr.]: in *pathol.*, a disease of the iris, in which the pupil is excessively dilated, and the sight becomes impaired, or even entirely lost. MYDRIATIC, n. *mī-drĭ-ăt'ĭk*, a medicine or agent which dilates the pupil of the eye, e.g., belladonna, atropine, stramonium, henbane—all derived from the nightshade order of plants: Adj. dilating the pupil of the eye.

MYELITIS, n. *mī'ĕ-lī'tĭs* [Gr. *muĕlŏs*, marrow, and *itis*, denoting inflammation]: inflammation of the substance of the spinal cord (see below). MYELOID TUMOR, *mī'ĕ-loyd* [Gr. *eidos*, likeness] a marrow-like tumor.

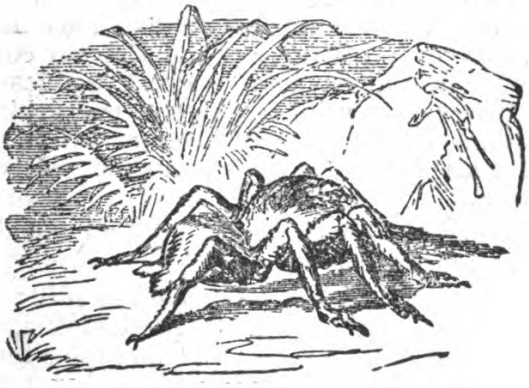
MYELITIS, *mī-ĕl-ī'tĭs:* inflammation of the substance of the spinal cord; either acute or chronic, but the latter is by far the most common. The *chronic* form begins with a little uneasiness in the spine, somewhat disordered sensations in the extremities, and unusual fatigue after any slight exertion. After a short time paralytic symptoms appear, and slowly increase. The gait becomes uncertain and tottering, and at length the limbs fail to support the body. The paralysis finally attacks the bladder and rectum, and the evacuations are discharged involuntarily; and death takes place as the result of exhaustion, or occasionally of asphyxia, if the paralysis involves the chest. In the *acute* form there is much pain (especially in the spinal region), which usually ceases when paralysis supervenes. The other symptoms are the same as those of the chronic form, but they occur more rapidly and with greater severity, and death sometimes takes place in a few days. The most common causes of this disease are falls, blows, and strains from over-exertion; but sexual abuses and intemperate habits occasionally induce it. It may also result from other diseases of the spine (as caries), or may be propagated from inflammation of the corresponding tissue of the brain. The treatment, which is much the same as that of inflammation elsewhere, must be confided entirely to the medical practitioner. When confirmed paralysis has set in, there is little to hope for, but in the early stage the disease is often checked by judicious remedies.

MYELON, n. *mī'ĕl-ŏn* [Gr. *muĕlŏs*, marrow]: the spinal cord of vertebrates. MYELONAL, a. *mī'ĕl-ōn'ăl*, of or pertaining to the spinal marrow.

MYER, *mī'ėr*, ALBERT JAMES: 1827, Sep. 20—1880, Aug. 24; b. Newburgh, N.Y.: U. S. chief signal officer, first conductor of the weather-bureau, and jocularly known as "Old Probabilities." He graduated at Hobart Coll. 1847, and Buffalo Med. Coll. 1851; entered the U. S. army as surgeon, assigned to duty in Texas; devised an effective system of signalling with flags by day and torches by night. In 1860, July, he became major, and was made signal officer by special act of congress; served in the Army of the Potomac as chief signal officer in all the battles from Bull Run to Antietam; took charge 1863, Mar. 3, of the chief signal office at Washington, with rank of col.; introduced the study of military signals at U. S. Military Acad.; 1863, Dec., he was assigned to reconnaissance on the Mississippi river, and later became chief signal officer under Gen. Canby, who intrusted to him the arrangement of the terms of the surrender of Fort Gaines; was relieved of his command on the ground of failure of confirmation of his nomination, and his appointment revoked 1864, July 21, but was made brevet brig.-gen. 1865, Mar. 13. At leaving the army he settled in Buffalo, N.Y.; prepared a *Manual of Signals for the U. S. Army and Navy;* was reappointed chief signal officer and col. in the army 1866, July 28; received charge of a

weather-bureau established by act of cong. of 1870, Feb. 9. The first observations at 24 stations in the interior of the continent were made and reported 1870, Nov. 1, 7:35 A. M.; first storm warning was telegraphed Nov. 8; a system of cautionary day and night signals for lake and ocean navigation established; also river reports and special reports for farmers. Publication of the daily International Bulletin was begun 1875, July 1; and 1878, July 1, a daily international chart took its place. Gen. M. represented U. S. meteorology at Vienna 1873, and at Rome 1879. He was promoted brig. gen. 1880, June 16, by special act of cong., in reward of his services. He died at Buffalo.

MYGALE, *mĭg'a-lē:* genus of spiders, type of a family



Mygale.

Mygalidæ. They have four pulmonary sacs and spiracles, four spinnerets, eight eyes, and hairy legs. They make silken nests in clefts of trees, rocks, etc., or in the ground, sometimes burrowing to a great depth, and very tortuously. To this genus belongs the bird-catching Spider (q.v.) of Surinam; but it seems now to be ascertained that several of the larger species frequently prey on small vertebrate animals. They do not take their prey by means of webs, but hunt for it and pounce upon it by surprise. They construct a silken dwelling for themselves in some sheltered retreat. Some of them make a curious lid to their nest or burrow. They envelop their eggs, which are numerous, in a kind of cocoon.

MYITIS, n. *mĭ-ī'tĭs* [Gr. *mus*, a muscle; *itis*, inflammation]: inflammation of a muscle: see MYOSITIS.

MYLABRIS, *mī-lā'brĭs:* genus of coleopterous insects, nearly allied to *Cantharis* (q.v.), and noticeable because of the use of some of the species as blistering flies. *M. cichorii* is thus used in China and India; and *M. Fuesselini*, native of s. Europe, is supposed to have been the blistering fly of the ancients.

MYLITTA, *mī-lit'ta* (perhaps corresponding to Heb. *Meyaledeth*, Genitrix, who causes to bear): female deity, apparently worshipped first among the Babylonians, who gradually spread her worship through Assyria and Persia. She was originally, like almost every other mythological deity, a cosmic symbol, and represented the female portion of the twofold principle through which—to pagan thought—all creation came into existence, and which alone, by its united active and passive powers, upholds it. M. is to a certain degree the representative of Earth, the Mother, who conceives from the Sun, Bel or Baal. M. and Baal together are considered the type of the 'Good.' Procreation thus being the basis of M.'s office in nature, the act itself became a kind of worship to M., and was hallowed through and for her. Thus it came to pass that every Babylonian woman had once in her life to give herself up to a stranger, and thereby considered her person consecrated to the great goddess. This sacrifice in later days gave rise to the proverbial Babylonian lewdness. Herodotus's account of this subject must, like some others of his stories, be received with great caution.

MYLO, prefix, *mī-lō-* [Gr. *mulē*, a mill]: connected with or resembling molar teeth.

MYLODON, n. *mī'lō-dŏn* [Gr. *mulē*, a mill; *odous* or *odonta*, a tooth]: genus of gigantic fossil sloths, so called from the flat grinding surfaces of the molar teeth. Its remains are found in the Pleistocene deposits of S. Amer., associated with the *Megatherium* and allied genera. A complete skeleton, dug up at Buenos Ayres, measured 11 ft. from the forepart of the skull to the end of the tail. Although like the modern sloth in general structure and dentition, its immense size forbids us to suppose that it could have had the same arboreal habits, and the modifications of its structure seem to have fitted it for the uprooting and prostrating of the trees, the foliage of which supplied it with food.

MYNHEER, n. *mĭn-hēr'* [Dut.]: sir; my lord; the style of address among the Dutch; a Dutchman.

MYNIAS, *mĭn'ĭ-as*, accurately MIN'YAS: in Greek myth., son of Chryses. He was king of Jolcos, and gave his name to the people called *Minyæ*. He built the city of Orchomenus, where rites (named after him) were celebrated in his honor. His three daughters, Clymene, Iris, and Alcithoë, according to Ovid—but Leuconoë, Leucippe, and Alcithoë, according to other authors—were changed into bats for having contemned the mysteries of Bacchus.

MYNPURI, or MAINPURI, *mīn-pō'rē:* town of Brit. India, cap. of a dist. in the N. W. Provinces; on the banks of a small affluent of the Ganges, 160 m. s.e. of Delhi. It is 620 ft. above sea-level, and is a favorite station for troops, as provisions and water are abundant and good. M. has a Jain temple. Pop. (1881) 20,236.

MYO-, prefix, *mī-o-* [Gr. *mus, muos*, a muscle, a mouse]: pertaining to or connected with the muscles: resembling a mouse; myomorphic.

MYOCARDITIS, n. *mī'ō-kâr-dī'tĭs* [Gr. *mus*, a muscle, *muos*, of a muscle; *kardĭă*, the heart]: inflammation of the muscular substance of the heart. MYODYNIA, n. *mī'ō-dĭn'ĭ-ă* [Gr. *odŭnē*, pain]: pain in the muscles; cramp; also termed 'myosalgia.'

MYOGRAPHY, n. *mī-ŏg'ră-fĭ* [Gr. *mus*, a muscle of the body, *muos*, of a muscle; *graphō*, I write]: an anatomical description of the muscles. MY'OGRAPH'ICAL, a. *-grăf'ĭ-kăl*, pertaining to. MYOGRAPHION, n. *mī-ō-grăf'ĭ-on*, an apparatus for ascertaining the velocity of the nervous current; invented 1850, by A. Helmholtz. MYOG'RAPHIST, n., one who writes on, or is versed in, myography.

MYOID, a. *mī'oyd* [Gr. *mus*, a muscle; *eidos*, resemblance]: composed of fibre cells or muscular fibres.

MYOLEMMA, n. *mī'ō-lĕm'mă* [Gr. *mus, mua*, a muscle; *lemma*, a husk or rind]: in *anat.*, a tubular sheath inclosing muscular fibre, consisting of transparent and apparently homogeneous membrane; sarcolemma.—Not in general use.

MYOLOGY, n. *mī-ŏl'ŏ-jĭ* [Gr. *mus*, a muscle, *muos*, of a muscle; *logos*, a discourse]: the science of the muscles; myography. MY'OLOG'ICAL, a. *lŏj'ĭ-kăl*, pertaining to. MYOL'OGIST, n. *-jĭst*, one versed in.

MYOMA, n. *mī-ō'mă* [Gr. *mus*, a muscle]: a fibrous tumor consisting of smooth muscular fibre.

MYOMANCY, n. *mī'ō-măn'sĭ* [Gr. *mus*, a mouse; *manteĭ'a*, divination]: a kind of divination by means of mice.

MYOPIA, n. *mī-ō'pĭ-ă* [Gr. *muō*, I shut the eyes; *ōps* or *ōpa*, the eye]: short or near sightedness. MY'OPE, n. *mī'ōp*, or MY'OPS, n. *-ōps*, a short-sighted person. MYOPIC, a. *mī-ŏp'ĭk*, short-sighted.

MYOSIN, n. *mī'ō-sĭn* [Gr. *muos*, of a muscle]: an albuminoid body extracted from muscular fibre.

MYOSITIS, n. *mī'ō-sī'tĭs* [Gr. *muos*, of a muscle, and *itis*, denoting inflammation]: inflammation of muscles.

MYOSOTIS, n. *mī'ō-sō'tĭs* [Gr. *muos*, of a mouse; *ous* or *ōtă*, an ear]: a very beautiful genus of flowering plants—so named from a fancied resemblance in the leaves to mouse-ears, from the hairiness of the leaves of some species, ord. *Boraginăcĕæ*. MYOSOTIS PALUSTRIS, *păl-ŭs'trĭs* [L. *pălŭstris*, marshy—from *pălus*, a marsh]: the Forget-me-not (q.v.).

MYOTOMY, n. *mī-ŏt'ŏ-mĭ* [Gr. *muos*, of a muscle; *tomē*, a cutting]: the division of a muscle in surgical operations; the anatomy of the muscles.

MYOXIDÆ, *mī-ŏks'ĭ-dē*: family of rodents, including the genus *Myoxis*, Dormouse (q.v.). They are sometimes included in the family SEIURIDÆ: see RODENTIA.

MYRCIA, *mėr'si-a:* genus of trees of nat. order *Myrtaceæ*, to which belongs the WILD CLOVE or WILD CINNAMON of the W. Indies (*M. acris*), a handsome tree 20 or 30 ft. high. Its timber is very hard, red, and heavy. Its leaves have an aromatic cinnamon-like odor and an agreeable astringency, and are used in sauces. Its berries are round and as large as peas, have an aromatic smell and taste, and are used for culinary purposes.—The leaves, berries, and flower-buds of *M. pimentoides* have a hot taste and fragrant smell, and are also used for culinary purposes.

MYRIAD, n. *mĭr'ĭ-ăd* [Gr. *murias* or *muriada*, ten thousand in unity; *murĭos*, innumerable; *murioi*, ten thousand, a myriad]: the number of 10,000; any immense number; a countless number.

MYRIAGRAM, n. *mĭr'ĭ-ă-grăm* [F.—from Gr. *murĭoi*, ten thousand; F. *gramme*]: measure of weight, 10,000 grams, about 22 lbs. avoirdupois: see GRAM.

MYRIALITRE, n. *mĭr'ĭ-ă-lē'tr* [F.—from Gr. *murĭoi*, ten thousand; F. *litre*]: measure of capacity containing 10,000 litres, about 610,280 cubic inches: see LITRE.

MYRIAMÈTRE, n. *mĭr'ĭ-ă-mā'tr* [F—from Gr. *murĭoi*, ten thousand; F. *mètre*]: measure of length, 10,000 metres, equal to 6½ miles nearly: see MÈTRE.

MYRIAPOD, n. *mĭr'ĭ-ă-pŏd*, MYR'IAP'ODA, n. plu. *-ăp'ŏ-dă* [Gr. *murĭos*, innumerable; *pous* or *poda*, a foot]: class of ringed animals, including centipedes and millepedes, having many feet; a class in the group *Arthropoda;* though by some recent writers placed rather as a subclass in the class *Tracheata* under the group *Arthropoda*. *Myriapoda* resemble *Annelida* in their lengthened form, and in the great number of equal, or nearly equal, segments of which the body is composed; but in most of their other characters they agree more nearly with Insects, among which they were ranked by earlier naturalists, and still are by some. They have a distinct head, but there is no distinction of the other segments, as in insects, into thorax and abdomen. They have simple or compound eyes; a few are destitute of eyes. They have antennæ like those of insects. The mouth is furnished with a complex masticating apparatus, in some resembling that of some insects in larval state, in others similar to that of crustaceans. Respiration is through minute pores or spiracles on each side along the entire length of the body, the air being distributed by innumerable ramifying air-tubes to all parts. In most parts of their internal organization the M. resemble insects; though a decided inferiority is exhibited, particularly in the less perfect concentration of the nervous system. The resemblance is greater to insects in their larval than in their perfect state. The body of the M. is protected by a hard *chitinous* covering. The number of segments is various, seldom fewer than 24; though in some of the higher genera they are consolidated together in

pairs, so that each pair, unless closely examined, might be considered as one segment bearing two pairs of feet. The legs of some of the lower kinds, as *Julus* (q.v.), are very numerous, and may be regarded as intermediate between the bristle-like appendages which serve many annelids as organs of locomotion, and the distinctly articulated legs of insects. In the higher M., as *Scolopendra*, the legs are much fewer, and articulated like those of insects. None of the M. have wings. Some of them feed on decaying organic matter, chiefly vegetable; those of higher organization are carnivorous. The M. do not undergo changes so great as those of insects, but emerge from the egg more similar to what they are ultimately to become; though some of them are at first quite destitute of feet; and, contrary to what takes place in insects, the body becomes more elongated as maturity is approached, the number of segments and of feet increasing.

The M. are divided into two orders: the lower, *Chilognatha* (*Julus*, etc.), having the body sub-cylindrical, the feet very numerous, the head rounded, the mandibles thick and strong; the higher, *Chilopoda* (*Scolopendra*, etc.), having the body flattened, the feet comparatively few, the head broad, the mandibles sharp and curved.

The M. are found in all parts of the world, in the ground, among moss, under stones, in the decaying bark of trees, in decaying roots, and in many similar situations. The largest species are tropical. They all are generally regarded with aversion. It is doubtful how far any of them are injurious to crops, though it is probable that they may accelerate rottenness already begun; but some (Centipedes) have a venomous and painful bite.

MYRI'CA: see CANDLEBERRY.

MYRICINE, n., or MYRICIN, n. *mĭr'ĭ-sĭn* [F. *myricine* —from L. *myrīca;* Gr. *murikē*, the tamarisk, a kind of shrub]: the portion of bee's-wax which is insoluble in alcohol; a medical substance obtained from the bark of the root of the wax myrtle or bayberry: see CANDLEBERRY.

MYRIORAMA, n. *mĭr'ĭ-ō-rā'mă* [Gr. *murĭos*, innumerable; *hor'ama*, a sight]: a picture consisting of movable pieces, and capable of forming an almost endless variety of scenes.

MYRISTIC ACID, *mĭr-ĭs'tĭk* [Gr. *murismos*, a besprinkling with perfumes—from *murizō*, I perfume], ($C_{14}H_{28}O_2$): crystalline fatty acid, found in the seeds of the common nutmeg, *Myristica moschata*. It occurs as a glyceride in the form of white scales, melting at 128, 8° F., insoluble in water and ether, soluble in hot alcohol, in the nutmeg butter, cocoa-nut oil, etc. It has recently been found in small quantity among the products of the saponification of spermaceti and of the fatty matter of milk; hence this organic acid must be ranked among those common to the animal and vegetable kingdoms. MYRISTICA'CEÆ (see NUTMEG). MYRISTICIN, n. *mĭr-ĭs'tĭ-sĭn*, the volatile oil of nutmegs. MYRISTIN, n. *mĭr-ĭs'tĭn*, a crystalline fat of a silky lustre obtained from nutmegs.

MYRMECOPHAGA, n. *mĕr'mĕ-kŏf'ă-gă* [Gr. *murmēx* or *murmēka*, an ant; *phago*, I eat]: genus of edentate quadrupeds which feed on ants: see ANT-EATER.

MYRME'LION: see ANT-LION.

MYRMIDONS, n. plu. *mĕr'mĭ-dŏnz* [Gr. *murmĭdŏnĕs*, the soldiers of Achilles at the siege of Troy]: rough partisans; a horde of soldiers or ruffians under a desperate or unprincipled leader. MYR'MIDO'NIAN, a. *-dō'nĭ-ăn*, pertaining to or resembling myrmidons.—Ancient legends concerning the M., a people in Thessaly, derive their name from Myrmidon, son of Jupiter: other legends give Ægina as their place of origin, and say that they were ants changed by Jupiter to men, and that they settled in Thessaly with Peleus, father of Achilles.

MYROBALAN, n. *mĭr-ŏb'ă-lăn* [L. *myrobalănum*, the fruit of a species of palm—from Gr. *muron*, ointment; *balănos*, an acorn]: astringent fruit of certain species of *Terminalia*, trees of nat. order *Combretaceæ*, natives of the mountains of India. The genus *Terminalia* has a deciduous bell-shaped calyx and no corolla; the fruit is a juiceless drupe. *T. Bellerica*, a species with alternate elliptical entire leaves, on long stalks, produces great part of the myrobalans of commerce; but the fruits of other species often appear under the same name. Tonic properties are ascribed to myrobalans; but though formerly in great repute, they are now scarcely used in medicine. They are used by tanners and by dyers, and have become a very considerable article of export from India. They are dried, and resemble prunes in appearance. They give a durable yellow color with alum, and, with the addition of iron, an excellent black.—*Emblic myrobalans* are the fruit of *Emblica officinalis*, of nat. order *Euphorbiaceæ*, native of India. They are used in India as a tonic and astringent; also in tanning and in making ink.—There is a kind of plum called the *Myrobalan Plum*: see PLUM.

MYRONIC, a. *mĭr-ŏn'ĭk* [Gr. *mŭrŏn*, any odorous juice flowing from a plant—from *murō*, I drop or flow]: denoting an acid, one of the components of black mustard-seed, existing in the seed as a potassium salt. MYROSIN, n. *mĭr'ŏ-sĭn*, an albuminous ferment, likewise contained in the seeds.

MYRRH, n. *mėr* [L. *myrrha;* Gr. *murrha;* Heb. *Mur*]: aromatic gummy resin produced by *Balsamodendron* (q.v.) *myrrha*, a tree of nat. order *Amyridaceæ*, growing in Arabia, probably also in Abyssinia. The M. tree is small and scrubby, spiny, with whitish-gray bark, thinly scattered small leaves, each consisting of three obovate obtusely toothleted leaflets, and the fruit a smooth brown ovate drupe, somewhat larger than a pea. M. exudes from the bark in oily yellowish drops, which gradually thicken and finally become hard, the color at the same time becoming darker. M. has been known and valued from the most ancient times; it is mentioned as an article of commerce in Gen. xxxvii. 25, and was among the presents which Jacob sent to the Egyptian ruler, and among those which the wise men from the East brought to the infant Jesus. It was an ingredient in the 'holy anointing oil' of the Jews. M. appears in commerce either in tears and grains, or in pieces of irregular form and various sizes, yellow, red, or reddish brown. It is brittle, and has a waxy fracture, often exhibiting whitish veins. Its odor is balsamic, its taste aromatic and bitter. It is used in medicine as a tonic and stimulant, in disorders of the digestive organs, excessive secretions from the mucous membranes, etc., also to cleanse foul ulcers and promote their healing, and as a dentifrice, particularly in a spongy or ulcerated condition of the gums. It was much used by the ancient Egyptians in embalming. The best M. is known in commerce as *Turkey M.*, being brought from Turkish ports; as the name *E. Indian M.* is also given to M. brought to Europe from the E. Indies, though it is not produced there, but comes from Abyssinia. It is not known whether the M. tree of Abyssinia is the same as that of Arabia, or an allied species. MYRRHIC, a. *mėr'ĭk*, pert. to or obtained from myrrh. MYRRHIC ACID, a substance obtained from myrrh. MYRRHOL, n. *mėr'ol*, in *chem.*, essential oil of myrrh.

Myrrh (*Balsamodendron myrrha*).

MYRRHINE, a. *mėr'rĭn* [L. *myrrhĭnus*, of or from the stone *myrrha*]: made of murrhine-stone or fluor spar.

MYRRHOPHORE, n. *mér'o-fōr* [lit. myrrh-bearer—from Gr. *murrha*, myrrh; *pherō*, I bear]: in *eccles. art*, one of the three Marys, myrrhophores who are represented as bearing vases of myrrh in their hands when visiting Christ's sepulchre at early dawn.

MYRSINACEÆ, *mér-sĭn-ā'sē-ē:* natural order of exogenous plants, consisting of trees and shrubs, natives of warm climates, and having simple leathery leaves, destitute of stipules; hermaphrodite or unisexual flowers, generally small, but often in umbels, corymbs, or panicles; very similar in structure to the flowers of the *Primulaceæ;* the fruit generally fleshy, with 1–4 seeds. The flowers are very often marked with sunken dots or glandular lines.—There are more than 300 known species. Many are beautiful evergreen shrubs, particularly the genus *Ardisia.* Some have peppery fruit, as *Embelia ribes.*

MYRTACEÆ, *mér-tā'sē-ē:* natural order of exogenous plants, consisting of trees and shrubs, natives chiefly of warm, but partly also of temperate, countries. The order, as defined by the greater number of botanists, includes several suborders, regarded by some as distinct orders, particularly CHAMÆLAUCIACEÆ (in which are contained about 50 known species, mostly beautiful little bushes, often with fragrant leaves, natives of New Holland), BARRINGTONIACEÆ (q.v.), and LECYTHIDACEÆ (q.v.). Even as restricted, by the separation of these, the order contains about 1,300 known species. The leaves are entire, usually with pellucid dots, and a vein running parallel to and near their margin.—Some of the species are gigantic trees, as the *Eucalypti* or *Gum Trees* of New Holland, and different species of *Metrosideros*, of which one is found as far south as Lord Auckland's Islands, lat. 50½°. The timber is generally compact.—Astringency seems a prevalent property in the order, and the leaves or other parts of some species are used in medicine as astringents and tonics. A fragrant or pungent volatile oil is often present in considerable quantity, of which *Oil of Cajeput* and *Oil of Cloves* are examples. *Cloves* and *Pimento* are among the best-known products of the order. The berries of several species are occasionally used as spices in the same way as the true Pimento. A considerable number yield pleasant edible fruits, among which are the POMEGRANATE, the GUAVA, species of the genus *Eugenia*, and some species of myrtle.

MYRTIFORM, a. *mér'tĭ-fawrm* [L. *myrtus*, myrtle; *forma*, shape]: having the shape of myrtle leaves or berries.

MYRTLE, n. *mér'tl* [OF. *myrtil*, a myrtle-berry—from L. *myrtus;* Gr. *murtos*, the myrtle]: a small fragrant evergreen plant; the *Myrtus communis*, or common myrtle (see below), ord. *Myrtăcĕæ.* MYRTACEOUS, a. *mér-tā'shŭs*, of or relating to the myrtle or MYRTA'CEÆ, *-sē-ē* (q.v.). MYRTLE-BERRY, the fruit. MYRTLE-WAX, wax from a species of myrtle: see WAX.

MYR'TLE (*Myrtus*): genus of *Myrtaceæ*, having the limb of the calyx 4–5-parted, 4–5 petals, numerous free stamens, an almost globose germen, and a 2–3 celled berry, crowned with the limb of the calyx, and containing kidney-shaped seeds. The leaves are opposite and marked with pellucid dots; the flower-stalks are axillary, and generally one-flowered.—The COMMON M. (*M. communis*) is well known as a beautiful evergreen shrub, or a tree of moderate size, with white flowers. It is a native of all the countries around the Mediterranean Sea, and of temperate parts of Asia, often forming thickets, sometimes even within the reach of the sea-spray. The leaves are ovate or lanceolate, varying much in breadth. They are astringent and aromatic, containing a volatile oil, and were used in medicine by the ancients as a stimulant. The berries also are aromatic, and are used in medicine in Greece and India. A

Myrtle (*Myrtus communis*):
1, flower of Myrtle, cut vertically; 2, Myrtle in flower.

M. wine, called *Myrtidanum*, is made in Tuscany. M. bark is used for tanning in many parts of s. Europe. Among the ancient Greeks, the M. was sacred to Venus, as the symbol of youth and beauty, was much used in festivals, and was, as it still is, often mentioned in poetry.—The SMALL-LEAVED M. of Peru (*M. microphylla*) has red berries of the size of a pea, of pleasant flavor and sugary sweetness. Those of the LUMA (*M. luma*) also are palatable, and are eaten in Chili; as are those of the DOWNY M. (*M. tomentosa*), on the Neilgherry Hills, and those of the WHITE-BERRIED M. (*M. leucocarpa*), by some regarded as a variety of the Common M., in Greece and Syria.

The berries of this species or variety are larger than those of the Common M., and have a pleasant taste and smell.—A very humble species of M. (*M. nummularia*) spreads over the ground in the Falkland Islands.

MYSELF, pron. *mī-sĕlf′* [*my*, and *self*] : emphatic form of the personal pronoun I, to which it is commonly added to render the pronoun *I* more emphatic, as *I myself.*

MYSIA, *mĭsh′ĭ-a :* ancient province in the n.w. of Asia Minor, bounded n. and w. by the Propontis and the Ægean Sea, s. by Lydia and Phrygia, n.e. by Bithynia. The n.w. corner of the province, between the Hellespont and the river Æsepus, is sometimes known apart from M., as the Troad. In the n. the chain of Olympus, 6,000 ft. high, separates M. from Bithynia; in the s. that of Temnus for some distance parts it from Lydia, and then passes through it to the Gulf of Adramyttium. The Rhyndacus river and its tributary, the Macestus, in the n. of M., take a widely diverging course from the Phrygian table-land to a union about 15 m. from the fall of their waters into the Propontis. The large Lake of Apollonia is a side-water of the Rhyndacus, and that of Miletopolis is similarly connected with the Macestus. The Caicus is the river of M. in the s., flowing from Mt. Temnus w. to the Ægean Sea. Pergamum and Cyzicus were chief cities of M.; but round its entire coasts, n. and w., were a series of Greek towns, many of them important colonies. The natives of M. were akin to those of Lydia and Phrygia, and probably of Thracian origin. Only a slight relic of their language remains. They fell under the Lydian monarchy of Crœsus, then under the Persian empire, later that of Alexander, and B.C. 190 that of Rome, the province of 'Asia' embracing M. from B.C. 130.

MYSIS, *mī′sĭs :* genus of podophthalmous (stalk-eyed) crustaceans, of order *Stomapoda,* much resembling the common shrimps in form, though differing in the external position of the gills. They are often called *Opossum Shrimps*, because the last two feet are furnished with an appendage which in the female forms a large pouch, and in this the eggs are received after they leave the ovary, and are retained till the young acquire a form very similar to that of the parent, when the whole brood are at once set free into the ocean. Species of M. are found on the British shores, but they are far more abundant in the Arctic seas, where they form no small part of the food of whales and of many fishes, particularly of various species of salmon.

MYSORE, *mī-sōr′*, or MAISUR : native state of s. India, administered 1831–81 by the British govt. It is surrounded by districts of the Madras govt. The area is 25,000 sq. m. M. is an extensive table-land, with average elevation of about 2,000 ft., and with a slope principally toward the n. and n.e. The chief rivers are the Cauvery, flowing s.e., and the Tungabhadro, the Hugri, and the Pennar, flowing n. and n.e. The climate of the higher

districts is during a great portion of the year healthful and pleasant. The annual value of the exports, consisting of betel-nut, coffee, cotton, cardamoms, rice, silk, and sugar, is more than $5,500,000. The imports, mainly of iron, gold, pepper, salt, and pulses, are more than $7,500,000. The ruinous misgovernment of the native prince led the British to assume the administration 1831; and it was entirely under their management till 1881, when it was restored to native govt. The famine years 1876–78 told with great severity on M. The chief town is Mysore; but the British headquarters were at Bangalore. For the history of M., see HYDER ALI: TIPPOO SAHIB: INDIA.—Pop. (1872) 5,055,412; (1881) 4,186,199.

MYSORE′, or MAISUR: city of India, cap. of the native state of M., chief town of a dist. It is amid picturesque scenery, on a declivity formed by two parallel ranges of elevated ground running n. and s.; 245 m. w.s.w. of Madras; lat. 12° 19′ n., long. 76° 42′ e. The houses are generally of teak, and among the chief edifices are the British residency and church. The fort is quadrangular in form, three of its sides 450 yards in length, and the remaining side longer. The rajah's palace, occupying three sides of the interior fort, contains a magnificent chair or throne of gold. The climate is mild, but not healthful; fevers are frequent. Carpets are manufactured. Pop. 60,000.

MYSTAGOGUE, n. *mĭs′tă-gŏg* [Gr. *mustēs*, one initiated in mysteries; *agōgŏs*, a leader]: one who interprets mysteries: in the anc. Greek religion, the priest whose office it was to direct the preparations of the candidates for initiation in the several Mysteries (q.v.), as well as to conduct the ceremonial of initiation. It was sometimes applied by a sort of analogy to the class of professional *ciceroni*, who in ancient, as still in modern times, undertook to show to strangers newly arrived in a city the noteworthy objects which it contained; but the former meaning is its primitive one, and formed the ground of the application of the same name, in the Christian Church, to the catechists or other clergy who prepared candidates for the Christian *mysteries*, or sacraments, of baptism, confirmation, and the eucharist, especially the last. In this sense, the word is frequently used by the fathers of the 4th and 5th c. In the well-known lectures of St. Cyril of Jerusalem, though all were addressed to candidates for the mysteries, some for baptism, and some for the eucharist, it is only to the lectures addressed to the latter that the name *mystagogic* is applied. This distinction was connected with the well-known Discipline of the Secret; and it appears to have ceased with the abolition or gradual disuse of that discipline.—The term M. in the Rom. Cath. Chh. is now applied to one who has church relics in charge and shows them to other people. MYS′TAGOG′IC, or MYS′TAGOG′ICAL, a. *-gŏj′ĭ-kăl*, pert. to or connected with a mystagogue.

MYSTER, or MISTER, n. *mĭs'tĕr* [OF. *mestier*, a trade, a craft—from L. *mĭnistĕrĭŭm*, service, employment] : in *OE.*, a trade; an occupation; a handicraft: also MYSTERY, or MISTERY, n. in *OE.*, a trade; a craft; a handicraft. MYSTERY PLAY has, therefore, according to some, been so named because acted by craftsmen. *Note.*—There is great confusion between this entry and the succeeding one, though they are totally different words: see note under MYSTERY 1.

MYS'TERIES (called also *Teletai*, *Orgia*, or, in Latin, *Initia*): certain rights and ceremonies in ancient, chiefly Greek and Roman, religions, known to and practiced by none except congregations of certain initiated men and women, at appointed seasons and in strict seclusion. The origin and real purport of these M., which held an important place among the religious festivals of the classical period, and which, in their ever-changing nature, designate various phases of religious development in the antique world, are almost unknown. Indeed, the vague speculations of modern times on the subject sound like an echo of the manifold interpretations of the various acts of the M. given by the priests to the inquiring disciple—according to the lights of the former or the latter. Some investigators, themselves not entirely free from mystic influences (e.g., Creuzer and others), have held them to have been a kind of misty orb around a nucleus of pure light whose bright rays were too strong for the eyes of the multitude; that, in fact, they hid under an outward garb of mummery a certain portion of the real and eternal truth of religion, the knowledge of which had been derived from some primeval, possibly the Mosaic, revelation, if it could not be traced to certain (or uncertain) Egyptian, Indian, or generally Eastern sources. To this kind of hazy conjecture, the real and thorough investigations begun by Lobeck, and pursued by many competent scholars in our own day, have, or ought to have, put an end. There cannot be anything more alien to the whole spirit of Greek and Roman antiquity than a hiding of abstract truths and occult wisdom under rites and formulas, songs and dances; and, in fact, the M. were anything but exclusive, either with respect to sex, age, or rank, in point of initiation. It was only the speculative tendency of later times, when Polytheism was on the wane, that tried to symbolize and allegorize these obscure and partly imported ceremonies, the bulk of which had undoubtedly sprung from the midst of the Pelasgian tribes themselves in prehistoric times, and which were intended to represent and to celebrate certain natural phenomena in the visible creation. There is certainly no reason to deny that some more refined minds may at a very early period have endeavored to impart a higher sense to these wondrous performances; but these can be considered only as solitary instances. The very fact that in later days it was necessary to abolish the M. as public nuisances in Rome itself speaks volumes against the modern speculation concerning occult wisdom incul-

cated in those secret assemblies of men and women, unfortunate inheritors of pagan habits of thought and life.

The M., as such, consisted of purifications, sacrificial offerings, processions, songs, dances, dramatic performances, and the like. The mystic formulas (*Deiknumena*, *Dromnea*, *Legomena*, the latter including the Liturgis, etc.) were held deep secrets, and could be communicated to those only who had passed the last stage of preparation in the mystagogue's hand. The hold which the nightly secrecy of these meetings, together with their extraordinary worship, must naturally have taken on minds more fresh and childlike than our advanced ages can boast of, was increased by all the mechanical contrivances of the effects of light and sound which the priests could command. Mysterious voices were heard singing, whispering, and sighing all around, lights gleamed in manifold colors from above and below, figures appeared and disappeared; the mimic, the tonic, the plastic—all the arts, in fact, were taxed to their utmost to make these performances (the nearest approach to which, in modern days, is furnished by transformation-scenes, or sensation-dramas in general) as attractive to the people and as profitable to the priests as could be. As far as we have any knowledge of the plots of these M. as scenic representations, they generally brought the stories of the special gods or goddesses before the spectator—their births, sufferings, deaths, and resurrections. Many were the outward symbols used, of which such as the Phallus, the Thyrsus, Flower Baskets, Mystic Boxes, in connection with special deities, told more or less their own tale, though the meanings supplied by later ages, from the Neo-Platonists to our own day, are various and often amazing. The most important M. were, in historical times, those of Eleusis and the Thesmophorian, both representing—from different points of view—the rape of Proserpina and Ceres's search for her: the Thesmophorian mysteries being also in a manner connected with the Dionysian worship (see BACCHUS). There were also those of Zeus of Crete—derived from a very remote period—of Bacchus himself, of Cybele and Aphrodite—the two latter with reference to the Mystery of Propagation, but celebrated in diametrically opposed ways, the former culminating in the self-mutilation of the worshipper, the latter in prostitution; further, the M. of Orpheus, who in a certain degree was considered the founder of all M. Nor were the other gods and goddesses forgotten: Hera, Minerva, Diana, Hecate, even foreign gods like Mithras (q.v.), and the like, had their due secret solemnities all over the classical soil, and whithersoever Greek (and partly Roman) colonists took their Lares and Penates throughout the ancient world. The beginning of the reaction in the minds of thinking men, against this mostly gross and degenerated kind of veneration of natural powers and instincts, is marked by the period of the Hesiodic poems; and when, toward the end of the classical periods,

the M. were no longer secret, but public orgies of the most shameless kind, their days were numbered. The most subtle metaphysicians, allegorize and symbolize as they might, failed in reviving them and in restoring to them whatever little dignity they may in the beginning have had. The M. were the sacraments of the old pagan religion—the inner rites in which, now with artistic beauty, now with sensual appeal, now with dark terrors, now with lurid glare, it centralized its influence on the minds of its adherents.

MYS'TERIES AND MIR'ACLE-PLAYS: dramas founded on the historical parts of the Old and New Testaments, and the lives of the saints; performed during the middle ages, first in churches, afterward in the streets on fixed or movable stages. Mysteries properly were taken from biblical and miracle-plays from legendary subjects, but this distinction in nomenclature was not always strictly observed. We have an extant specimen of the religious play of a date prior to the beginning of the middle ages in the *Christos Paschōn*, assigned, somewhat questionably, to Gregory Nazianzen, and written in 4th c. Greek. Next come six Latin plays on subjects connected with the lives of the saints, by Roswitha, nun of Gandersheim, in Saxony, which, though not very artistically constructed, possess considerable dramatic power and interest; they have been lately published at Paris, with a Fr. translation. The performers were at first the clergy and choristers, afterward any layman might participate. The earliest recorded performance of a miracle-play was in England. Matthew Paris relates that Geoffroy, afterward Abbot of St. Albans, while a secular, exhibited at Dunstable the miracle-play of *St. Catherine*, and borrowed copes from St. Albans to dress his characters. This must have been at the end of the 11th or beginning of the 12th c. Fitzstephen, in his *Life of Thomas à Becket*, 1183, describes with approval the representation in London of the sufferings of the saints and the miracles of the confessors. On the establishment of the Corpus Christi festival by Pope Urban IV. 1264, miracle-plays became one of its adjuncts, and every considerable town had a fraternity for their performance. Through the 15th and following centuries, they continued in full force in England, and are mentioned, sometimes approvingly, sometimes disapprovingly, by contemporary writers. Designed at first as a means of religious instruction for the people, they had long before the Reformation so far departed from their original character, as to be mixed in many instances with buffoonery and irreverence, intentional or unintentional, and to be the means of inducing contempt rather than respect for the church and religion. Remarkable collections exist of English mysteries and miracles of the 15th c., known as the Towneley M. (Surtees Soc., 1836), the Coventry M. (Shaks. Soc., 1841), the Chester Plays (Shaks. Soc., 1843), and the York Plays (Oxf. Clar. Press, 1885). The Towneley M. are full of the

burlesque element, and contain many curious illustrations of contemporary manners.

Out of the mysteries and miracle-plays sprang a third class of religious plays called *Moralities*, in which allegorical personifications of the Virtues and Vices were introduced as *dramatis personæ*. These personages at first took part in the play only as associated with the scriptural or legendary characters, but afterward entirely superseded them. The oldest known English compositions of this kind are of the time of Henry VI.; they are more elaborate and less interesting than the miracle-plays. Moralities continued in fashion till the time of Elizabeth, and were the immediate precursors of the regular drama.

Miracles and mysteries were as popular in France, Germany, Spain, and Italy as in England. A piece of the kind yet extant, composed in France in the 11th c., is entitled *Mystery of the Wise and Foolish Virgins*, and written partly in the Provençal dialect and partly in Latin. A celebrated fraternity, called the Confrérie de la Passion, founded in Paris 1350, had a monopoly for the performance of mysteries and miracle-plays, which were of such length that the exhibition of each occupied several days. A large number of the French mysteries of the 14th c. are extant. In the alpine districts of Germany, miracle-plays were composed and acted by the peasants: these peasant-plays had less regularity in their dramatic form, were often interspersed with songs and processions; and in their union of simplicity with high-wrought feeling were most characteristic of a people in whom both the religious and the dramatic element are so largely developed. In the early part of the 18th c., they began to partake of the burlesque which had brought miracle-plays into disrepute elsewhere.

It is a mistake to suppose that the hostility of the reformers was what suppressed these exhibitions. The fathers of the Reformation showed no unfriendly feeling toward them. Luther is reported to have said that they often did more good and produced more impression than sermons. The most direct encouragement was given to them by the founders of the Swedish Prot. Church, and by the earlier Lutheran bishops, Swedish and Danish. The authorship of one drama of the kind is assigned to Grotius. In England, the greatest check that they received was from the rise of the secular drama; yet they continued to be occasionally performed in the times of James I. and Charles I.; and it is well known that the first sketch of Milton's *Paradise Lost* was a sacred drama, where the opening speech was Satan's Address to the Sun. A degenerate relic of the miracle-play may yet be traced in some remote districts of England, where the story of St. George, the dragon, and Beelzebub, is rudely represented by the peasantry. Strange to say, it was in Rom. Cath. s. Germany, where these miracle-plays and mysteries had preserved most of their old religious

character, that the severest blow was levelled against them. Even there, they had begun to be tainted to a limited extent with the burlesque element, which had brought them into disrepute elsewhere. In 1779, a manifesto was issued by the Prince-abp. of Salzburg, condemning them, and prohibiting their performance, on the ground of their ludicrous mixture of the sacred and the profane, the frequent bad acting in the serious parts, the distraction of the lower orders from more edifying modes of instruction, and the scandal arising from the exposure of sacred subjects to the ridicule of freethinkers. This ecclesiastical denunciation was followed by vigorous measures on the part of the civil authorities in Austria and Bavaria. One exception was made to the general suppression. In 1633, the villagers of Oberammergau, in the Bavarian highlands, on the cessation of a plague which desolated the surrounding country, had vowed to perform every tenth year the Passion of Our Saviour, out of gratitude, and as a means of religious instruction; a vow which had ever since been regularly observed. The pleading of a deputation of Ammergau peasants with Max. Joseph of Bavaria saved their mystery from the general condemnation, on condition of everything that could offend good taste being expunged. It was then and afterward somewhat remodelled, and is perhaps the only mystery or miracle-play which has survived to the present day. The last performance of this Passion-play took place 1890. The inhabitants of this secluded village, long noted for skill in carving in wood and ivory, have a rare union of artistic cultivation with perfect simplicity. Their familiarity with sacred subjects is even beyond what is usual in the alpine part of Germany, and the spectacle seems still to be regarded with feelings much like those with which it was originally conceived. What would elsewhere appear impious, is to the alpine peasants devout and edifying. The personator of Christ considers his part an act of religious worship; he and the other principal performers are said to be selected for their holy life, and consecrated to their work with prayer. The players, about 500 in number, are exclusively the villagers, who, though they have no artistic instruction, except from the parish priest, act their parts with no little dramatic power, and a delicate appreciation of character. The New Testament narrative is strictly adhered to, the only legendary addition to it being the St. Veronica handkerchief. The acts alternate with *tableaux* from the Old Testament and choral odes. Many thousands of the peasantry are attracted by the spectacle from all parts of the Tyrol and Bavaria, among whom the same earnest and devout demeanor prevails as among the performers; and, recently, visitors of cultured taste have been attracted in considerable numbers from Gr. Britain and the United States. Plays of humbler description, from subjects in legendary or sacred history, are not unfrequently performed by the villagers around Inns-

bruck, which show some rude dramatic talent. See the work of Sepet and Leon Gautier; Leroy's *Études sur les Mystères;* and the ed. of the *Mystère de la Passion,* by G. Paris and Reynaud.

MYSTERY, n. *mĭsé'tr-ĭ* [L. *mystērĭŭm;* Gr. *mustērion,* a secret thing—from Gr. *mustēs,* one who is initiated; *muein,* to initiate into mysteries: It. *misterio:* F. *mystère*]: profound secret; something wholly unknown; something very obscure or incomprehensible; that which is kept secret for a time to be afterward revealed; something that can be known only by revelation: a miracle-play. MYS'TERIES, n. plu. *-ĭz,* among *anc. pagans,* secret rights and worship known only to the initiated (see above): in the *middle ages,* miracle-plays, a kind of rude drama of a religious character (see above). MYSTE'RIOUS, a. *-tē'rĭ-ŭs,* relating to or containing mystery; hid from the understanding; very obscure; incomprehensible, and calculated to excite curiosity or wonder. MYSTE'RIOUSLY, ad. *-lĭ.* MYSTE'RIOUSNESS, n. *-nĕs,* the quality of being mysterious. MYSTERY, or MYSTERY PLAYS, and MIRACLE PLAYS, a species of dramatic compositions having characters and scenes drawn from the Bible, which were performed in the middle ages; also representing the martyrdom of the saints. PASSION PLAYS represented the sufferings of Christ between the Last Supper and His death. MORALITY PLAYS, about the time of the Reformation, plays much in vogue, which represented the claims of morality over vice, and drew the characters chiefly from allegorical personages. (See MYSTERIES AND MIRACLE PLAYS). *Note.*—Max Müller says MYSTERY PLAY is a corruption of L. *ministĕrĭum,* a religious ministry or service, and had really nothing to do with *mystery;* thus *mystery play* is properly *minstery play,* as from *ministry.*—SYN. of 'mysterious': secret; obscure; dark; mystic; occult; unintelligible; enigmatical; cabalistic.

MYSTERY: see under MYSTER.

MYSTIC, a. *mĭs'tĭk,* or MYSTICAL, a. *mĭs'tĭ-kăl* [F. *mystique*—from Gr. *mustikos;* L. *mysticus,* of or belonging to secret rites or mysteries—from Gr. *mustēs;* L. *mysta,* a priest of the mysteries: It. *mistico*]: obscure; hidden; remote from human comprehension; emblematical; involving a secret meaning. MYS'TIC, n. one professing to have direct intercourse with the Spirit of God. MYSTICS, n. plu. *mĭs'tĭks,* those who profess a pure, sublime, and disinterested devotion, and who aspire toward a more direct intercourse with the Divine Being than can be obtained through revelation, not through the medium of the senses, but through the inward perception of the mind; those who sought direct revelation from God in a species of ecstasy, or through visions. MYS'TICALLY, ad. *-lĭ.* MYS'TICALNESS, n. *-nĕs,* quality of being mystical.

MYSTICE'TE: name sometimes applied to the Right Whale, or Greenland Whale; see WHALE.

MYSTICISM, n. *mĭs'tĭ-sĭzm:* religious tenets of the mystics; obscurity of doctrine. The term is used with considerable vagueness, but implies that general tendency in religion to higher and more intimate communication with the Divine, which, in most religions, ancient and modern, certain individuals or classes have claimed or more humbly have sought. In the Platonic philosophy, and in the Eastern systems, from which that philosophy is derived, the human soul being regarded as in some way partaking of the divine nature, it is held to be the great end of life to free the soul from the embarrassment and mental darkness in which it is held by the material trammels of the body. In the pursuit of this end, two very opposite courses were adopted: the first, that of spiritual purification, partly by repressing the natural appetites and weakening the sensual impulses by corporeal austerities, partly by elevating the soul through intense contemplation and withdrawal from outward objects of sense; the other, that of regarding the soul as superior to the body, independent of its animal impulses, incapable, from its higher origin, of being affected by its outward actions, or sullied by contact with the corruption in which its lower nature might love to wallow. A similar element of M., which, in truth, must form in some sense a constituent of every elevated religious system, is traceable in the early doctrinal history of Christianity; and the career of Christian M. also divides itself into the same twofold course. Among the early sects external to the church, we trace the first in the system of Tatian and of the Eucratites, while the second finds its parallel in the Syrian Gnostics, in Carpocrates, Bardisanes, and in one form at least of the Nicolaitic heresy. Within the Christian Church there never has been wanting a continuous manifestation of the mystical element. The language of the apostle Paul, Gal. ii. 20; II Cor. xii. 2, and many expressions in the Apocalypse, may be taken as the exponents of Christian M., the highest aspiration of which has ever been toward that state in which the Christian 'no longer liveth, but Christ liveth in him.' And though no regular scheme of M. can be found in the early Fathers, yet the writings of Hermas the Shepherd, the Epistles of St. Ignatius, the works of St. Clement of Alexandria, the Expositions of Origen, and above all, the Confessions of St. Augustine, abound with outpourings of the true spirit of Christian M. It is curious that the first systematic exposition of its principles is said to be in the works of the pseudo-Dionysius the Areopagite; but it was not till the days of the Scholastics that it received its full development, when the mystic life was resolved into its three stages, viz., of Purification, of Illumination, and of Ecstatic Union with God and Absorption in Divine Contemplation. It was mainly on the explanation of this third stage that the great division of the mediæval mystic schools turned; some of them explaining the union with God in a pantheistic or

semipantheistic sense, thereby annihilating the individual will, and almost the personal action of man in the state of ecstasy; others, with St. Bernard, fully preserving both the individuality and the freedom of man, even in the highest spiritual communication with his Creator. Of the former, many, as the Hesychasts (q.v.) in the Greek Church, and the Brethren of the Free Spirit (q.v.) and the Beghards in the Latin, drew from these mystical doctrines the most revolting moral consequences; in others, as Tauler, Ruysbroek, Ekkart, the error does not seem to have gone beyond the sphere of speculation. The writings of Thomas à Kempis (q.v.), of St. Catharine of Siena, of St. John of the Cross, and of St. Teresa, may perhaps be taken as the most characteristic representations of the more modern form of the traditionary M., which has come down from the mystics of the middle ages. A frequent application of the term in recent Christian theology is to a method of dealing with divine truth, rather than to any set of doctrines. Modern Christian M. reverently accepts the revelations given from God in Holy Scripture, while it is characterized by a tendency to refrain from reducing them to a systematic expression in the forms of a human philosophy—holding them rather as profound and eternal verities whose characteristic appeal is primarily to a spiritual faith both for their acceptance and for their investigation. The term M. is now often applied to this tendency in theology, because of the seeming obscurity resulting from such lack of a hard logical frame-work; but this application of the term must be deemed more a criticism and a reproach than an accurate designation.

For the later history of M. in the Rom. Cath. Chh., see FÉNELON, Mme. GUYON: MOLINOS: QUIETISM. The most remarkable followers of the same or kindred doctrines in the Prot. communions are Jacob Böhme (q.v.), of Görlitz, Emmanuel Swedenborg (q.v.), and William Law (q.v.).

MYSTIFY, v. *mĭs'tĭ-fī* [F. *mystifier*, to mystify—from L. *mysticus*, hidden; *fīō*, I am made: Gr. *mustikos*, mystic]: to involve in mystery so as to mislead; to render obscure; to perplex purposely; to play upon the credulity of. MYS'TIFYING, imp. MYS'TIFIED, pp. *-fīd*. MYS'TIFICA'TION, n. *-fĭ-kā'shŭn* [F.—L.]: the act of rendering a thing mysterious or perplexing.

MYTH, n. *mĭth* [Gr. *muthos*, originally speech, word; but after the age of Pindar and Herodotus, an ancient saying, legend—Syn. with L. *fabula*, fable]: fanciful narrative, in some respects founded on real events; a creation of the imagination; poetic fiction; fable (see MYTHOLOGY). MYTHIC, a. *mĭth'ĭk*, or MYTHICAL, a. *mĭth'-ĭ-kăl*, relating to myths; fanciful; fabulous. MYTH'-ICALLY, ad. *-lĭ*.

MYTHOGRAPHER, n. *mĭth-ŏg'ră-fĕr* [Gr. *muthos*, a fable; *graphō*, I write]: a writer of fables.

MYTHOLOGY, n. *mĭth-ŏl′ŏ-jĭ* [Gr. *mutholŏgĭă*, a fabulous narration—from *muthos*, an ancient saying, a fable; *logos*, a word]: the collected body or system of legends and traditions of a people respecting their gods and other fabulous beings, usually connected with their earlier history; system of myths (see below): also, a treatise on myths. MYTHOLOGIC, a. *mĭth′ŏ-lŏj′ĭk*, or MYTH′OLOG′ICAL, a. *-lŏj′ĭ-kăl*, of or relating to mythology. MYTHOLOGIST, n. *mĭth-ŏl′ŏ-jĭst*, one versed in mythology. MYTH′OLOG′ICALLY, ad. *-lĭ*. MYTHOLOGIZE, v. *mĭth-ŏl′ŏ-jīz*, to explain the fabulous history of the heathen. MYTHOL′OGIZING, imp. MYTHOL′OGIZED, pp. *-jīzd*.

MYTHOL′OGY: system or body of ideas or fancies relative to the early periods of a people's existence, presented in historical form attractively setting forth their religious beliefs. A nation's M. is the organized body of its myths, and has for nucleus its earliest traditions and legends, for which there may reasonably be presumed some foundation, though often extremely slight, in facts. The element of reality, however, early begins to be lost in exaggeration and wild distortion. The tendency to such creation of myths seems inherent in every people; certainly there is no people so sunk into the brute as to be without them. A myth is not to be confounded with an allegory; the myth being an unconscious act of the popular mind at an early stage of society, the allegory a conscious act of the individual mind at any stage of social progress. The parables of the New Testament are allegorical; so are Æsop's Fables; no one mistakes them for histories; they are known to have been invented for a special didactic purpose, and so received. But the peculiarity of myths is, that they are not only conceived in the narrative form, but generally taken for real narrations by the people to whom they belong, so long at least as the people do not pass a certain stage of intellectual culture. Even myths of which the allegorical significance seems somewhat plain, such as the well-known Greek myth of Prometheus and Epimetheus, were received by the Greeks as facts of early tradition. Myths may be divided into several classes, of which the first and most important is the theological and moral. The oldest theology of all nations is in the form of myths; hence the great importance of mythological study, now universally recognized, for it is not occupied merely or mainly with strange fancies and marvellous fictions, invented for the sake of amusement, but contains the fundamental ideas belonging to the moral and religious nature of man as they have been embodied by the imaginative faculty of the most favored races. It is this dominance of the imagination, so characteristic of early stages of society, which gives to myth its peculiar dramatic expression, and stamps the popular creed of all nations with the character of a poetry of nature, of man, and of deity. From the very nature of the case, the myth-producing faculty exercises itself with exuberance only under the poly-

theistic form of religion; for there only does a sufficient number of celestial personages exist, whose attributes and actions may be exhibited in narrative form; there is nothing, however, to prevent even a monotheistic people from exhibiting certain great ideas of their faith in a narrative form, so as by prosaic minds to be taken for literal historical facts. But besides strictly theological myths, there are physical myths, i.e., fictions representing the most striking appearances and changes of external nature in the form of poetical history; in which view, the connection of legends about giants, chimeras, etc., with regions marked by peculiar volcanic phenomena, has been often remarked. It is difficult indeed, in polytheistic religions, to draw any strict line between physical and theological myths; as the divinity of all the operations of nature is the first postulate of polytheism, and every physical phenomenon becomes the manifestation of a god. Again, though it may appear a contradiction, there are historical myths—marvellous legends about persons, who may with probability be supposed to have actually existed. So intermingled, indeed, is fact with fable in early times, that there must always be a kind of debatable land between plain theological myth and recognized historical fact. This land is occupied by what are called the heroic myths; that is, legends about heroes, concerning whom it may often be doubted whether they are set forth as a sort of inferior, and more human-like gods, or only men of more than ordinary powers whom the popular imagination has elevated into demi-gods.

The scientific study of M. commenced with the ancient nations who produced it, specially with the acute and speculative Greeks. The great mass of the Greek people, indeed—of whom we have a characteristic type in the traveller Pausanias—accepted their oldest legends, in the mass, as divine and human facts; but so early as the time of Euripides, or even before his day in the case of the Sicilians, Epicharmus and Empedocles, we find that philosophers and poets had begun to identify Jove with the upper sky, Apollo with the sun, Juno with the nether atmosphere, and so forth; i.e., they had begun to interpret their M. as a theology and poetry of nature. This, indeed, may be regarded as the prevalent view among all the more reflective and philosophical heathens (who were not, like Xenophon, orthodox believers) from the age of Pericles, B. C., 450, to the establishment of Christianity. But there was an altogether opposite view, which arose at a later period, under less genial circumstances, and exercised no small influence both on Greek and on Roman writers. This view was prominently put forth first by Euhemerus, a Messenian, in the time of the first Ptolemies, B.C. 4th c., and consisted in the flat, prosaic assertion, that the gods, equally with the heroes, were orginally men, and all the tales about them only human facts sublimed and elevated by the imagination of pious devotees. This view seemed to

derive strong support from the known stories about the birth and death of the gods, specially of Jove in Crete; and the growing skeptical tendencies of the scientific school at Alexandria, were of course favorable to the promulgation of such views. The work of Euhemerus accordingly obtained wide circulation; and having been translated into Latin, went to nourish that crass form of religious skepticism which was one of the most notable symptoms of the decline of Roman genius at the time of the emperors. Historians, like Diodorus, gladly adopted an interpretation of the popular mythology which promised to swell their stores of material; the myths accordingly were coolly emptied of the poetic soul which inspired them, and the early traditions of the heroic ages were set forth as plain history, with a grave sobriety equally opposed to sound criticism, natural piety, and good taste.

In modern times, the Greek M. has again formed the basis of much speculation on the character of myths and the general laws of mythical interpretation. The first tendency of modern Christian scholars, following the track long before taken by the fathers, was to refer all Greek M. to a corruption of Old Testament doctrine and history. Of this system of interpreting myths, we have examples in Vossius, in the learned and fanciful works of Bryant and Faber, and very recently, though with more pious and poetic feeling, in Gladstone. But the Germans, who have taken the lead here, as in other regions of combined research and speculation, have long ago given up this ground as untenable, and have introduced the rational method of interpreting every system of myths, in the first place, according to the peculiar laws traceable in its own genius and growth. Ground was broken in this department by Heyne, whose views have been tested, corrected, and enlarged by a great number of learned, ingenious, and philosophical writers among his own countrymen, specially by Buttmann, Voss, Creuzer, Müller, Welcker, Gerhard, and Preller. The general tendency of the Germans is to start—as Wordsworth does in his *Excursion*, book iv.—from the position of a devout imaginative contemplation of nature, in which the myths originated, and to trace the working out of those ideas, in different places and at different times, with the most critical research, and the most vivid reconstruction. Though in this work they have set forth a large mass of ingenious nonsense and brilliant guess-work, there has not been wanting among them sober judgment and sound sense to counteract such extravagances. It may be noticed however, as characteristic of their over-speculative intellect, that they have a tendency to bring the sway of theological and physical symbols down into a region of what appears to be plain historical fact; so that Achilles becomes a water-god, Peleus, a mud-god, and the whole of the *Iliad*, according to Forchhammer, a poetical geology of Thessaly and the Troad! Going to the opposite extreme

from Euhemerus, they have denied the existence even of deified heroes; all the heroes of Greek tradition, according to Uschold, are only degraded gods; and generally in German writers, a preference of transcendental to simple and obvious explanations of myths is noticeable. Creuzer, some of whose views had been anticipated by Blackwell, in Scotland, especially is remarkable for the high ground of religious and philosophical conception on which he has placed the interpretation of myths; and he was also the first who directed attention to the oriental element in Greek M.—not, indeed, with sufficient discrimination in many cases, but to the great enrichment of mythological material, and the enlargement of philosophical survey. In the most recent times, by uniting the excursive method of Creuzer with the correction supplied by the more critical method of O. Müller and his successors, the science of comparative M. has been brought into existence; and specially the comparison of the earliest Greek M. with the sacred legends of the Hindus, has been ably advocated by Max Müller in *Oxford Essays* (1856). In France, the views of Euhemerus were propounded by Banier (1739). M. has been very scantily cultivated by British scholars. Besides those above named, Payne, Knight, Mackay, Grote in the first vols. of his history, and Keightley are the only names of note; and their works can in nowise compete in originality, research, discriminating criticism, or largeness of view, with the productions of the German school. The best for common purposes is Keightley; the most original, Payne Knight. Sir G. W. Cox, in his work on Aryan M. has pushed the sanskritizing tendencies of Max Müller to an extreme which to most minds seems absurd. The labors of the modern anthropological school, e.g., Tylor and Lubbock, are of value; also those of Fiske and Dorman in America. For the special mythologies of India, Rome, Greece, etc., see the titles of the respective countries: see also BACCHUS: JUPITER: HERCULES: ETC.

MYTHOPLASM, n. *mĭth'ŏ-plăzm* [Gr. *muthos*, a fable; *plasma*, image, figure]: a narration of mere fable.

MYTHOPŒIC, a. *mĭth'ŏ-pē'ĭk* [Gr. *muthos*, a myth; *poiein*, to make]: making or producing myths; giving rise to myths or mythical narratives.

MYTILE'NE, or MITYLE'NE (island): see LESBOS.

MYTILE'NE, or, MITYLE'NE (city): see CASTRO.

MYTILOID, a. *mī'tĭl-oyd* [L. *mytĭlus*, the sea-mussel; Gr. *eidos*, appearance]: in *geol.*, applied to shells undetermined, but approaching in shape the common sea-mussel.

MYTILUS, n. *mī'tĭl-ŭs* [L. *mytĭlus*, the sea-mussel]: the mussel, a bivalve mollusk, used as food, ord. *Mytil'idæ* (see MUSSEL).

MYXINE, *mĭks'ĭn-ē*: genus of cartilaginous fishes: see HAG (fish).

MYXOMA, n. *mĭks-ō′mă*, MYXOMATA, n. plu. *mĭks-om′-ă-tă* [Gr. *muxa*, mucus, slimy substance]: a tumor composed of mucous tissue.

MYXOMYCETES, n. *mĭks′ŏ-mī-sē′tēz* [Gr. *muxa*, a slimy substance; *mukēs*, a fungus]: a group of Thallophytes without chlorophyl; organisms found in moist situations growing on decaying leaves, moss, rotten wood, and the like, and which spread over them in a net-work of naked protoplasmic filaments of a soft creamy consistence and yellowish color.

MYXOSPORES, a. *mĭks′ō-spōrz* [Gr. *muxa*, mucus; *spora*, a seed]: the spores formed in the sporangia of the myxomycetes. MYXOSPOROUS, a. *mĭks-ŏs′pŏr-ŭs*, having myxospores, or pertaining to them.

N

N, or n, *ĕn :* nasal consonant, 14th letter of the English alphabet; one of the nasal liquids of the lingual class. See LETTERS. Its Heb. (and Phen.) name, *Nun*, signifies a *fish*, which its original form was prob. meant to represent. N is interchangeable with L (q.v.) and M, as in *col*lect, *com*mingle, *con*fer; and in Ger. *boden*, compared with Eng. *bottom*. In Latin, this letter had a faint, uncertain sound at the end of words and in some other positions, especially before *s*. This accounts for words in *on* having lost the *n* in the nominative case, though retaining it in the oblique cases, as *homo*, *hominis ;* and for Gr. names like *Platon* being written in Latin without the final *n*. The dull, muffled pronunciation of *n*, indicated by such words as *consul*, *censor*, *testamento*, being frequently spelled *cosul*, *cesor*, *testameto*, was the first stage of the modern Fr. nasal *n*. Before a guttural letter, *n* naturally assumes the sound of *ng*, as *bank*. The letter *n* is liable to be detached and joined to the succeeding word beginning with a vowel, particularly the *n* of *an*, as *an ewt* becomes *a newt ; an eke-name* becomes *a nickname ; an ingot* becomes *a nugget*—formerly *niggot*, etc. : *n* is sometimes dropped, as *auger* for *nauger ; umpire* for *numpire ; adder* for *nadder ; orange* for *norange*, etc.—see Skeat.

NAAS, *nās :* market and assize town of Kildare county, Ireland, 20½ m. s.w. of Dublin. Having been anciently the seat of the kings of Leinster, N. was early occupied by the English. A parliament was held in it 1419, and it obtained charters successively from Henry V., Elizabeth, and James I. At present it has little trade. It is the seat of a diocesan school, and of three national schools, one of which is attached to the Rom. Cath. convent. Pop. (1881) 3,808.

NAB, v. *năb* [Dan. *nappe;* Sw. *nappa*, to snatch; Fin. *nappata*, to seize suddenly: Dut. *knappen*, to crack, to seize] : to catch or seize unexpectedly; to clap the hand down upon a thing—a low or slang word. NAB'BING, imp. NABBED, pp. *năbd*.

NABLOCKS, n. plu. *năb'lŏks :* the name applied to rounded or nodular masses, like the flints in chalk, or the balls of ironstone in the Coal-measures.

NABOB, n. *nā'bŏb* [Hind. *nawwâb*, a deputy, title of a governor; properly the plu. of *nâïb*]: title of the administrators, under the old Mogul empire, of the separate provinces into which the dist. of a *Sûbahdâr* (q.v.) was divided. The title was continued under the British rule, but it gradually came to be applied generally to natives who were men of wealth and consideration. In Britain and other western countries, it is applied colloquially to those who, having made great fortunes in the Indies, return to their native country, where they live in oriental splendor.

NABONASSAR, *năb-o-năs'ĕr*, ERA OF: starting-point of Babylonian chronology; adopted by the Greeks of Alexandria, Berosus, and others. It began with the accession of Nabonassar to the throne—an event calculated (from certain astronomical phenomena recorded by Ptolemy) to have taken place B.C. 747, Feb. 26.

NABULUS', or NÂBLUS' (corruption of the Gr. *Neapolis*, New City, the name given to it in the reign of Vespasian); anciently called SHECHEM or SICHEM; in the N. Test. (Jn. iv. 5), SYCHAR: town of Palestine, possessing, it is said, 'the only beautiful site from Dan to Beersheba.' It lies between Mount Ebal and Mount Gerizim, on the s. side of the valley of Erd-Mûkhna. The houses are moderately good, but the streets (as usual in the East) are narrow, gloomy, and filthy. The chief productions are soap, cotton, and oil—the soap-manufactories are large, and the oil is considered the best in Syria. Pop. variously estimated 8,000 to 14,000; of whom about 500 are Christians, 150 Samaritans, and 50 Jews; the rest are Mohammedans, fierce, turbulent, and fanatical.—See Porter's *Handbook for Syria and Palestine*, and Stanley's *Palestine*.

NACH, or NAUTCH, n. *nawch* [Skr.]: a dance in India, performed by girls or women; an entertainment given by rich Hindus. NAUTCH-WALI or -WALEE, *-wâl-ē'* [Ar. *wali*, a servant]: a dancing-girl. The 'N. girls' are regularly trained for public dancing; and are numerous, as their dance is in great request for festive occasions.

NACHLAVT, n. *nâch'lowt* [Ger. after-sound; *nach*, after; *laut*, sound]: in *philol.*, the second element in a diphthong, or in a diphthongal sound.

NACHT-HORN, n. *nâcht'hawrn* [Ger. night-horn]: an organ stop consisting of stopped wood pipes of a moderately large scale, the tone of which is somewhat like that of a horn.

NACRE, n. *nā'kr* [F. *nacre*, mother-of-pearl: Sp. *nacar:* Pers. *nakar*]: the beautiful iridescent substance forming the inner covering of shells; mother-of-pearl. NACREOUS, a. *nā'krĕ-ŭs*, having a pearly lustre. NACRITE, n. *nā'krīt*, a mineral of the mica family, consisting of minute grains or scales, having a pearly lustre. See MOTHER OF PEARL.

NADAB, n. *nā'dăb* [Pers.]: the high priest of the Persians.

NA'DAL, BERNARD HARRISON, D.D.: 1812, Mar. 27—1870, June 20; b. in Talbot co., Md.: Meth. Episc. clergyman. He was admitted 1835 to the old Baltimore conference; labored in Md., Va., Penn., Brooklyn, N. Y., and New Haven, Conn.; graduated at Dickinson Coll. 1848, during his service at Carlisle, Penn.; prof. at Asbury Univ., Indiana, 1854–57; chaplain of house of representatives at Washington one session. At the organization of Drew Theol. Sem., he became prof. of church history; and at the death of Dr. McClintock, acting pres. until his death. He was an editor of *The Methodist;* published in *Meth. Quart. Review*, 1854–57, *Essays upon Church History;* strongly opposed and frequently spoke against slavery, and used great influence, through sermons and addresses, in support of the war for the Union. Prof. Henry A. Buttz published 1873 a vol. of his sermons, *New Life Dawning*, with a memoir.

NADIR, n. *nā'dir* [Ar. *nadhĭr*, opposite: It. and F. *nadir*]: that point in the heavens which is diametrically opposite to the zenith, so that the zenith, nadir, and centre of the earth are in one straight line. The N. is, to any observer, the point directly beneath his feet. The Zenith (q.v.) and N. form the poles of the Horizon (q.v.).

NADIR SHAH, *nâ'dĕr shâh*, Ruler of Persia: 1688–1747, June 20 (ruled 1736–47); b. near Kelat, in the centre of Khorassan, Persia; of the Afshars, a Turkish tribe. When 17 years old, he was taken prisoner by the Usbeks, but escaped after four years; entered the service of the gov. of Khorassan, and soon obtained high promotion. Having, however, been degraded and punished for some real or supposed offense, he betook himself to a lawless life, and for several years was the daring leader of a band of 3,000 robbers who levied contributions from almost the whole of Khorassan. N. seized the town of Kelat, and gradually extended his territorial authority. Persia was at this time ruled by Melek Ashraf, an Afghan of the tribe of Ghilji, whose grinding tyranny and cruelty produced in the mind of every Persian a deadly hatred of the very name Afghan, which exists to the present day. N. having avowed his intention of expelling the hated race from the country, and restoring the Suffavean dynasty, numbers flocked to his standard, and Meshed, Herat, and all Khorassan were speedily reduced. Ashraf, signally defeated in several engagements, fled before the avenging N., who quickly purged the provinces of Irak, Fars, and Kerman of even the semblance of Afghan domination. The assassination of Ashraf, during his retreat, terminated the war. The rightful heir, Tamasp, then ascended the throne, and N. received for his services the govt. of the provinces of Khorassan, Mazanderan, Seistan, and Kerman, assuming at the same time the title of Tamasp-kûli (Slave of Tamasp), the title of khan being subsequently added. He was sent against the Turks 1731, and defeated them at Hamadan, regaining the Armenian provinces which had been seized by

the Turks in the preceding reign; but his sovereign having in his absence engaged unsuccessfully the same enemy, N. caused him to be put in prison, and elevated his infant son, Abbas III., to the throne 1732. The death of this puppet, 1736, opened the way for the elevation of N. himself, who was crowned as *Nadir Shah* 1736, Feb. 26. He resumed the war with the Turks; and, though totally defeated in the first two battles by the Grand Vizier Asman, turned the tide of fortune in the subsequent campaign, and granted peace to the Turks on condition of receiving Georgia. He also conquered Afghanistan, and drove back the invading Usbeks. His ambassador to the Great Mogul having been murdered with all his suite at Jelalabad, and satisfaction having been refused, N. in revenge ravaged the N.W. Provinces, and took Delhi, which, because of the insane behavior of the inhabitants, he gave up to pillage. With booty to the amount of $100,000,000, including the Koh-i-nûr (q.v.) diamond, he returned to the w. bank of the Indus. He next reduced Bokhara and Khaurezm, restoring to Persia her limits under the golden reign of the Sassanides. From this period, his character underwent a sudden change: he had been open-hearted, liberal, and tolerant; he now became suspicious, avaricious, and tyrannical. The empire groaned under his extortions, and he was finally assassinated. His only surviving son was carried to Constantinople, and thence to Vienna, where he was brought up as a Rom. Catholic, under the surveillance of Empress Maria Theresa, and died a major in the Austrian service, under the title of Baron Semlin. N.'s later tyranny has now been forgotten by the Persians, and at the present day he is regarded with pride and gratitude as the 'Wallace' of Persia.

NÆVIUS, *nē'vĭ-ŭs*, GNÆUS, *nē'ŭs*: one of the earliest Latin poets: b. (it is conjectured) abt. B.C. 265; d. some time after B.C. 204. In his youth, he served in the first Punic war; but about B.C. 235 he made his appearance at Rome as a dramatic writer. Of his life, we know little; but of his character, rather more. He was very decidedly attached to the plebeian party, and in his plays satirized and lampooned the Roman nobles with all the virulence and indiscretion of a hot-blooded impetuous Campanian—that Gascon of ancient Italy. His rashness ultimately caused his banishment to Utica in Africa, where he died 204 or 202 B.C. N. was a man of vigor, and a poet of original force: he has been termed 'second (in time) among the creators of Latin literature.' Besides his dramatic writings, comprising both tragedies and comedies, he wrote an epic poem, *De Bello Punico*, in the old Saturnian meter. Of these, only a few very unimportant fragments are extant, which may be found in editions by Vahlen (1854), Klussmann (1843), and Ribbeck (*Fragmenta Scenicæ Romanorum Poesis*, 2d ed. 1873). See also Sellar's *Poets of the Roman Republic*, and Simcox's *History of Latin Literature* (1882).

NÆVUS, n. *nē'vŭs* [L. *nævus*, a mole on the body]: permanent natural spot or mark on the skin at birth; a birthmark. NÆVOSE, a. *nē'vōs*, freckled; having congenital marks. NÆVOID, a. *nē'voyd* [Gr. *eidos*, resemblance]: resembling a nævus.—*Nævus* (known popularly as *mother-spot* or mole) is a congenital mark or growth on a part of the skin. Sometimes it is merely a dark discoloration of the surface (see MACULA), in which case it is termed a mole, and is perfectly harmless; but often it consists of a dense network of dilated blood-vessels, forming a reddish or livid tumor, more or less elevated above the surface of the surrounding skin. The most frequent situations of these vascular nævi are the skin and subcutaneous cellular tissues of the head; but they may occur elsewhere. The popular belief is, that they are caused by the longing of the mother during her pregnancy for a lobster, or strawberry or raspberry, or some other red-colored article of food, and that the influence of her mind has impressed upon the fœtus a more or less vivid image of the thing she longed for; hence the name *mother-spot*. Sometimes these tumors waste away spontaneously, and give no trouble; but frequently they increase rapidly, invade the adjacent tissues, and ulcerate or slough, and thus become dangerous to life by hemorrhage. When these tumors do not show a tendency to increase, no treatment is necessary. When they are obviously increasing in size, the continual application of cold (by means of freezing mixtures), with moderately firm pressure, is sometimes of service; but a more certain method is to employ means to produce such an amount of inflammation as to obliterate the vessels; for this purpose, the seton, the application of nitric acid, and vaccination of the tumor have been successfully applied. The injection of strong astringents, with the view of coagulating the blood, has sometimes effected a cure. If all those means fail, extirpation, either with the ligature or knife, must be resorted to; the ligature being regarded as the safest and best method. The various methods of applying the ligature are explained in any standard work on operative surgery. If the tumor is in an inaccessible spot, as in the orbit of the eye, and is increasing rapidly, the only course is to tie the large vascular trunk supplying it. The common carotid artery has in several instances been tied with success for vascular nævus in the orbit.

NÄFE'LS, *nā'fĕlss*: village of Switzerland (pop. 3,000), canton of Glarus, five m. n. of the town of Glarus, in a deep valley. It is one of the most famous battle-fields in the country. Here, 1,500 men of Glarus, under Matthias am Buhl, in 1388, overthrew an Austrian force of 6,000 to 8,000 men. The event is still celebrated yearly.

NAF'TIA, LAGO: curious small lake in Sicily, about two m. from Mineo, in Catania. It is in a plain, amid craggy hills, and is circular, usually 60 or 70 yards in diameter, and about 15 ft. deep, but in dry weather shrinking to a much smaller size, and occasionally dried up. In the midst of it are three small craters, two of which perpetually send up water in jets to the height of two or three ft.; the third is intermittent. The water is greenish, or turbid, and has an odor of bitumen. The whole lake resembles a boiling caldron, from the escape of carbonic-acid gas, rushing upward with great force. The atmosphere is consequently fatal to birds attempting to fly across the surface of the lake, and to small animals which approach it to satisfy their thirst; and an approach to it is attended with headache and other painful effects on man himself. The ancients regarded these phenomena with great dread. They supposed that Pluto, when carrying off Proserpine, drove his fiery steeds through this lake, ere his descent to the lower regions. A temple was erected here to the gods of the two craters, the *Dii Palici*, supposed to be twin sons of Jupiter by the nymph Thalia. Pilgrims flocked to this shrine; and it afforded an inviolable asylum to slaves who had fled from their masters. An oath by the Dii Palici was never broken by the master, who found himself compelled here to come to terms with his runaway slave. No remains of the temple are left.

NAG, n. *năg* [Dan. *ög*, a horse: Dut. and Fris. *negghe*, a little horse: Swiss, *noggeli*, a dumpy woman: Icel. *nabbi;* OF. *nabe*, a dwarf]: a small useful horse; a pony; a horse; in *OE.*, a paramour. *Note.*—A probable derivation of *nag* may be found in the corruption of *a hack* into *a nag:* Gael. *each*, a horse; the Dan. *an og* becomes *a nog.*

NAG, v. *năg* [Norw. and Sw. *nagga*, to gnaw, to irritate: Icel. *naga*, to gnaw]: to scold and keep it up. NAG'GING, imp.: ADJ. applied to a slight but constant pain; scolding and keeping it up. NAGGED, pp. *năgd.* NAG'GY, a. *-gĭ*, touchy; irritable.

NAGA, *nâ'ga:* in Hindu myth., the name of deified serpents, represented as sons of the Muni Kas'yapa and his wife Kadrû, whence they are called also Kâdraveyas. Their king is S'esha, the sacred serpent of Vishn'u.

NAGA, n. *nâ'ga*, or NAG, *nâg* [Mahratta, *naga;* Hind. *nag*]: term applied to an ancient race who invaded India about the 6th c. B.C.; applied also to a number of tribes living on the borders of Assam, Munnipoor, and Burmah; a member of one of the Naga tribes: a class of mendicants in Hindustan, going naked and carrying arms.

NAGAPATAM, *nag-a-pa-tâm':* seaport of Brit. India, on the Coromandel coast, province of Tanjur, 15 m. s. of Karikal. It was taken by the Dutch 1660, but fell into the hands of the English 1781. Its site is an open sandy plain, elevated only three or four ft. above sea-level. The port is visited by small vessels, and has some trade with Ceylon. Pop. (1881) 53,855.

NAGARJU'NA, or NAGASE'NA: one of the most celebrated Buddhistic teachers or patriarchs—the 13th—who, according to some, lived about 400 years, according to others, about 500 years, after the death of the Buddha S'âkyamuni (i.e., B.C. 143 or 43). He was founder of the Mâdhyamika school, and his principal disciples were Aryadeva and Budhapâlita. According to the tradition of the Buddhas, he was born in s. India, of a Brahmanical family. Even as a child, he studied all the four Vedas; later, he travelled through various countries, and became proficient in astronomy, geography, and magical arts. By means of the last, he had several amorous adventures, which ended in the death of three companions of his, but in his own repentance, and, with the assistance of a Buddhist mendicant, in his conversion to Buddhism. Many miracles are, of course, attributed to his career as propagator of this doctrine, especially in s. India, and his life is said to have lasted 300 years.—See E. Burnouf, *Introduction à l'Histoire du Buddhisme Indien* (Paris 1844); Spence Hardy, *A Manual of Buddhism* (Lond. 1853); W. Wassiljew, *Der Buddhismus* (1860); and the works of Oldenberg (1881), and Rhys Davids.

NAGASAKI, *nâ-ga-sâ'kē*, or NANGASIKI, *nân-ga-sē'kē*: city, chief seaport on the w. coasts of Japan, one of the ports which the treaty of 1858 opened to foreign commerce 1859, July 1; on the w. side of a peninsula in the n.w. of the island of Kiusiu; 32° 44′ n. lat., 129° 51′ e. long. Previously to 1859, it was the only port in Japan open to foreigners. The harbor, one of the most beautiful in the world, is about six m. in width, and three or four in length. Within, it appears completely land-locked, and it is surrounded by hills about 1,500 ft. in height. These are broken into long ridges and deep valleys; while the more fertile spots are terraced and under cultivation. The town of N., about a mile in length, and three-quarters of a mile in width, lies on the n. side of the bay. The streets in general are clean and well paved, but the houses are not well built, except those possessed by courtesans and known as 'tea-houses.' On the hills behind the town are various temples—those dedicated to 'Sinto,' or the worship of the sun goddess, the old national religion of Japan, and those in which the Buddhistic worship, imported from China, is followed. The foreign settlement lies s. of the native town, the British, French, German, Prussian, and Portuguese consulates occupying the hilly ground back from the bay. On the opposite side of the bay, the Japanese have a steam-factory, under the direction of Dutch officers, and close by is the Russian settlement. The climate of N. is genial, but variable. The trade of N. is inferior to that of Kanagawa. Sea-weed, salt-fish, and other articles are exported to China. The exports to Europe and Amer. are mainly tea, tobacco, coal, ginseng, vegetable wax, and copper. The chief imports are cotton piece-goods, woolen goods, sugar, oils. Total value of imports (1870)

$1,617,000; of exports nearly $2,000,000. The import trade suffers from the absence of wealthy native merchants and from lack of banking facilities. In 1879 the great new dock of N., the largest in Japan, was put in use. It is 460 ft. long by 89 broad, and 28 deep, and is expected to promote trade.—Pop. (1881) 39,566: statements (1885) give pop. 'about 80,000.'

NAGELFLUE, *nâ'gĕl-flô:* the provincial name for a bed of conglomerate belonging to the Molasse (q.v.), which forms a considerable portion of the strata in the central region of Switzerland, between the Alps and the Jura. It is said to attain the enormous thickness of 6,000 and 8,000 feet in the Rhigi near Lucerne, and in the Speer near Wesen.

NAGINA: see NUGGINA.

NAGKESUR: the name under which the blossoms of the *Mesua ferrea* are sold in the bazars of India. See GUTTIFERÆ.

NAGOYA, *nâ-goy'â:* city of Japan, province of Owari, on a great plain a few m. n. of the head of Owari Bay, in the s.e. of the main island of Japan. It is the seat of the Aichi-ken, or prefecture; is regularly laid out and well built; is a great centre of population (estimated at about 400,000); has many temples and monasteries of the old religion, and a castle, built 1610, one of the finest of the old strongholds still standing intact. Two of the towers of the castle are ornamented with huge images of rampant fish made of copper and covered with plates of solid gold. There is a govt. college and a telegraph station, indicative of recent changes in Japan. The great high-road called Tôkaidô passes through N., bringing much inland trade, which is carried on with pack-horses and the long narrow carts of the country. At the seaport of Miya, a few miles s. of N., many steamers and junks promote a large trade. In the numerous factories of N., porcelain, faïence, cloisonware, fans, carvings, and lacquer-work are made, chiefly for export. The art of enamelling on porcelain in cloisons of metal threads originated here 1872.

NAGPUR, *nâg-pôr':* extensive division of Brit. India. under the chief commissioner of the Central Provinces; 24,040 sq. m. The n. part of the division is mountainous, traversed by spurs of the great Vindhya range; the general slope of the surface is from n.w. to s.e., and the Bay of Bengal receives the drainage of the country chiefly through the rivers Máhanadí and Wain Gangá—the latter a tributary of the Godávarí. The climate is not healthful, especially in the extensive tracts of low marshy land. The Gonds (see INDIA), supposed to be the aborigines, are the most remarkable class of the inhabitants. They rear fowls, swine, and buffaloes; but their country, forming the s.e. tracts—about one-third of the whole—is covered with dense jungle, swarming with tigers. In the more favored districts, where the

inhabitants are more industrious, rice, maize, oil, and other seeds, and vegetables are extensively cultivated. The rajahs of N., sometimes called the rajahs of Berar, ruled over a state formed out of a part of the great Mahratta kingdom. The dynasty, however, died out 1853, and the territory came into the possession of the British. Cap., Nagpur. Pop. of div. (1881) 2, 758,056.—The *District* of N. 3,786 sq. m., had pop. (1881) 697,356.

NAGPUR′: city of Brit. India, cap. of the dist. of N., and situated near its n.w. extremity, in an unhealthful swampy hollow, 430 m. e.n.e. of Bombay. Inclusive of its extensive suburbs, it is seven m. in circumference. It contains no important edifices. The great body of the inhabitants live in thatched mud-tents, interspersed with trees, which prevent the circulation of air, and secrete moisture, thus rendering the town needlessly unhealthful. The mean temperature of N. is estimated at about 80° F. Cotton cloths, coarse and fine chintzes, turbans, silks, brocades, blankets, woolens, tent-cloths, and articles in copper and brass, are manufactured. Here, 1817, Nov. 26, 27, a small British force of 1,350 men, commanded by Col. Scott, defeated a native army of 18,000 men. Pop. (1881) 98,300.

NAG'S HEAD CONSECRATION: name referring to a story circulated first by the Rom. Catholics in England, 40 years after the event, regarding Abp. Parker's consecration. It was to the following effect: On the passing of the first Act of Uniformity in the first year of Queen Elizabeth, 14 bishops vacated their sees, and all the other sees, excepting that of Llandaff, being vacant, there was a difficulty in maintaining the hitherto unbroken succession of bishops from apostolical times. Kitchin of Llandaff refused to officiate at Parker's consecration as abp. of Canterbury; consequently the Prot. divines procured the help of Scory, a deprived bishop of the reign of Edward VI., and all having met at the Nag's Head Tavern in Cheapside, London, they knelt before Scory, who laid a Bible on their heads or shoulders, saying: 'Take thou authority to preach the word of God sincerely;' and they rose up bishops of the New Church of England. The story is discredited by the Rom. Cath. historian Lingard, and is carefully refuted by Strype in his life of Parker. The facts of the case are, that the election took place in the chapter-house at Canterbury, the confirmation at St. Mary le Bow's Church in Cheapside, and the consecration in the chapel of Lambeth Palace. Scory, then elected to the see of Hereford; Barlow, formerly Bp. of Wells, then elected to Chichester; Coverdale, formerly of Exeter, and never reappointed to any see; and Hodgkin, suffragan of Hereford, officiated at the consecration. The Nag's Head story probably arose from the company having possibly gone from Bow Church, after the confirmation, to dine together at the tavern near by, according to the prevailing custom. There is no evidence that the due succession of bishops in the English Church has ever been broken.

NAGY, *nŏdj:* Hungarian word, meaning 'great'; prefixed to the names of many towns in Hungary and Transylvania. (For many of the towns that take this prefix, see the name that comes after it.)

NAGYAGITE, n. *năg'ĭ-ă-jīt* [from *Nagyag*, in the Siebenberg]: a mineral consisting of tellurium and lead, with traces of gold, silver, copper, and sulphur.

NAGY BAN'YA: see BANYA.

NAGY ENYED, *nŏdj ĕn-yĕd':* small town of Transylvania, on the Masro, 17 m. n.n.e. of Karlsburg. It contains a famous Calvinistic college. Pop. (1880) 5,362.

NAGY KAROLY, *nŏdj kŏh-rŏly'* (Great Karoly): town of Hungary, cap. of the county Szathmar, 37 m. e.n.e from Debreczin, on a small feeder of the Theiss. It has several important annual fairs, and a trade in corn and cattle. It was fearfully devastated 1887, July, by a hurricane and water-spout. Pop. (1880) 12,523.

NAGY-KOROS': see KÖRÖS.

NAGY-ZRE'BEN: see HERMANNSTADT.

NAGY-VA'RAD: see GROSSWARDEIN.

NAHANT, *na-hănt':* tp. in Essex co., Mass., till 1853 a part of Lynn; in Massachusetts Bay; 10 m. n.e. of Boston. It is a rocky peninsula, extending 3½ m. into the bay, forming the e. side of Lynn harbor, and connected with the mainland by a hard narrow beach of sand and gravel. The rocks along the shore are 20–60 ft. above high water, and contain numerous caves, notably Swallow's Cave and Spouting Horn. The bay extremity, Great Nahant, is 2 m. long, ½ m. broad, 463 acres. Little Nahant is a rocky ridge of 40 acres, about ½ m. in from Great Nahant, and rising 80 ft. above the sea. This peninsular town contains 2 churches, 2 schools, several hotels, and numerous handsome residences, and has long been a very attractive summer resort. Pop. (1870) 475; (1880) 808; (1885) 637.

NA'HUM, *nā'hŭm:* one of the twelve minor prophets of Israel: either a native of Elkosh, in Galilee, or the son of a man named Elkosh. The identification of his birthplace with Capernaum (Nahum's Village) or with a place called Elkosh, on the e. side of the Tigris, not far from Nineveh, is only vague speculation. He was probably a contemporary of Isaiah, and lived about B.C. 713–711. The burden of his 'vision' (chap. iii.) is the destruction of Nineveh and the downfall of the Assyrian kingdom. His style is full of animation, fancy, and originality, and at the same time clear and rounded. His language throughout is classical, and in the purest Hebrew, belonging to the second half of Hezekiah's reign, or to the time immediately following the defeat of Sennacherib before Jerusalem. Tradition points out various places as containing N.'s tomb. A commentary on N., with special reference to Assyrian monuments, was written by O. Strauss (1853). See Ewald's *Prophets*, and the works on Introduction to the Old Testament.

NA'IA: see ASP: COBRA.

NAIAD, n. *nī'ăd* or *nā'yăd* [Gr. *naiădēs*, the naiads—from *naein*, to flow: It. *najade*: F. *naiade*]: in *anc. myth.*, one of the water-nymphs, or female deities said to preside over rivers, fresh-water lakes, and fountains. They were believed to possess the power of inspiration; hence, soothsayers and others are sometimes called *nympholeptoi* (seized by the nymph). They were represented as half-clothed maidens, and frequently as companions of Pan, of Hercules, patron of warm springs, or of the Sileni and the Satyrs, in whose jovial dances they joined. See NYMPHS.

NAIADES, *nā'yad-ēz*, or NAIADA'CEÆ, *nā-yad-ā'sē-ē*, or POTAMEÆ, *po-tā'mē-ē*: nat. order of endogenous plants, divided by some botanists into several orders (*Juncagineæ*, *Zosteraceæ*, etc., containing in all not quite 100 known species, all aquatic plants, some inhabiting the ocean, some found in lakes and ponds, some in streams. They all are of very cellular structure; the leaves have parallel veins, and the flowers are inconspicuous. To this order belongs the Pondweed (*Potamogeton*). To this order also belongs the GRASSWRACK (q.v.) used for stuffing mattresses. The Lattice-leaf (q.v.) of Madagascar is one of the most interesting species, and one of the few which attract notice as in any way beautiful.

Naiant.

NAIANT, *nā'yant* or NATANT, *nā'tant* [see NATANT]: heraldic term applied to a fish borne horizontally across the shield in a swimming position.

NAIK, or NAICK, n. *nā'ĭk* or NAIGUE, [Skr. *nayak*, a chief, a leader]: in *India*, native subaltern officer among Indian and Anglo-Asiatic troops, a corporal whose functions are somewhat analogous to those of the drill-sergeant among European troops.

NAIL, n. *nāl* [Ger. *nagel*, a nail of the hand, a nail for fastening with: Icel. *nagl*, a nail, a claw: Lith. *nagas*, a claw: *naginti*, to scratch: Skr. *nakha*, a nail]: one of the flat horny substances at the ends of the fingers and toes (see below): pointed piece of iron or other metal, commonly with a head, used to fasten woodwork (see below): measure of length, one-sixteenth of a yard [Fin. *naula*, applied to the nails by which the different weights are marked on a steelyard]: V. to fasten or unite with nails. NAIL'ING, imp. NAILED, pp. *nāld*. NAILER, n. *nāl'ėr*, one whose trade is to make nails. NAIL'ERY, n. *-ėr-ĭ*, a nail manufactory. ON THE NAIL, without delay; immediately. NAIL-HEADED COPPER ORE, the name given in Cornwall to certain crystals of chalcosine, from their fanciful resemblance to the heads of nails. TO HAVE NAILED IT, to have secured it. TO NAIL THE COLORS TO THE MAST, in *naval warfare*, a signal to the enemy that there will be no surrender; *figuratively*, to intimate

a determination to succeed at every risk and never to abandon the attempt. TO HIT THE NAIL ON THE HEAD, to touch the exact point; to understand the matter. *Note.*—When the *nails* are compressed, curved, or pointed, and extended beyond the digit, they are called *talons* or *claws;* when they encase the extremity of a digit like a box they are called *hoofs*.

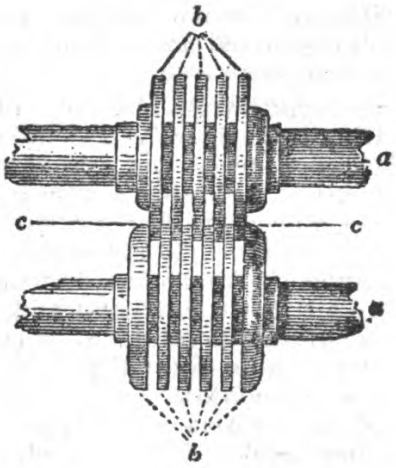
NAILS: flattened, elastic, horny plates, placed as protective coverings on the dorsal surface of the terminal phalanges of the fingers and toes. Each nail consists of a *root*, or part concealed within a fold of the skin; a *body*, or exposed part attached to the surface of the skin; and a free anterior extremity called the *edge*. The skin below the root and body of the nail is termed the *matrix*, from its being the part from which the nail is produced. This is thick, and covered with highly vascular papillæ, and its color is seen through the transparent horny tissue. Near the root, the papillæ are smaller and less vascular; hence the portion of nail corresponding to this part is of whiter color; from its form, this portion is termed the *lunula*. It is by the successive growth of new cells at the root and under the body of the nail that it advances forward, and maintains a due thickness, while its growth in a proper direction is insured. For the chemical composition of the nails, see HORNY TISSUES, to which class of structures they belong. According to the observation of Beau, the finger-nails grow at the rate of about two-fifths of a line in a week, while the toe-nails grow with only about one-fourth of that rapidity. When a nail has been removed by violence, or has been thrown off in consequence of the formation of matter (pus) beneath it, a new nail is speedily formed, provided the matrix has not been seriously injured.

There is a very common and troublesome affection popularly known as *ingrowing nail*. Its most usual seat is by the side of the great toe. It arises not from any alteration of the nail, but from the adjacent soft parts being constantly pressed by tight shoes against its edge. These parts become swollen and inflamed; suppuration ensues, and an intensely sensitive ulcer is formed, in which the nail is embedded. Surgical advice should at once be resorted to in these cases, as there is no probability that the ulcer will heal spontaneously, especially if the patient continue to move about, and thus keep up irritation. In obstinate cases, it is not unfrequently necessary to remove a portion of the nail, an operation attended with much pain, though quickly performed.

NAILS: pointed pieces of metal, usually with flattened or rounded heads, used for driving into wood-work, for the purpose of holding the pieces together. A variety, in which the head is very large, and the spike portion small, used by shoemakers for protecting the soles of boots and shoes from wear, is called the *hob-nail;* another, made by cutting thin plate-iron into thin pointed pieces of various lengths, is called *brads;* these sometimes are without heads, but are usually made with a slight projection by way of a head. When made small, with flat heads, for attaching cloth or hangings in upholstery-work, they are called *tacks;* and when very large for heavy carpentry, *spikes.*

Nail-making.—Formerly, all nails were hand-made, by forging on an anvil; and in Britain and n. Europe, vast quantities are still made in this manner, being preferable, for many kinds of carpenter's work, to those made by machinery. In France, the greater part of the nails for light carpentry are of soft iron wire, pointed with the hammer; and in order to head them, they are pinched in a toothed vice, which leaves the portion for the head projecting, and makes below it three or four grooves in the nail, which increases its hold on the wood when driven home. The head is beaten into a counter-sinking on the vice, which regulates the size.

The iron used for hand nail-making is sold in bundles, and is called *nail-rods;* it is prepared either by rolling the malleable iron into rods or small bars of the required thickness—which process is employed only for very fine qualities—or by cutting plate-iron into strips by means



of rolling-shears: these shears consist of two powerful revolving shafts (*a*, *a*, fig.), upon which are fixed disks of hard steel with squared edges (*b*, *b*, fig.). The disks of one shaft alternate with those of the other; they are of the thickness of the plate to be cut, and the shafts are so placed that a small portion of one set of the disks are inserted between those of the other set. When the shafts are revolving, a plate of iron is pressed between

the disks in the plane of the dotted line *c*, *c*, fig.; and it is forcibly drawn through, the steel disks cutting the plates into strips with great rapidity. The quantity produced in this way is enormous, some mills turning out at the rate of ten miles per hour of nail-rods.

Several inventions, in which the United States took the lead, have been introduced, and are successfully worked, for making nails direct from plate-iron, either by cutting them out cold or hot; and a very large proportion of the nails in use are made in this way. Nail-making by machinery was originated in Mass. 1810. Formerly nails were classified as to size, from two-penny, 1 in. long (880 to the lb.), to thirty-penny, 4½ in. long (16 to the lb.). The names 6 lb., 7 lb., etc., indicate that 1,000 of the nails should weigh that number of lbs., though they seldom do.

NAIN, *nā'in:* hamlet in the n. of Palestine, scene of the narrative in Luke vii. 11–17, of Christ calling back to life the widow's son. It is about six m. s.e. of Nazareth, a little to the left of the road going s. The site is a low spur north of the mountain of Dŭhy, where the name (Heb. *beauty*) was appropriate. There stand now only a few recent stone or mud hovels; but there are ruins of larger buildings. The phrase 'gate of the city' in Luke appears to have meant no more than place where the road enters between the houses of the village. The way from this to the rock-cut tombs near goes w. across the road from Nazareth.

NAINA (or NYNEE) TAL: summer resort of the lieut.-govt. of the N. W. Provinces of India; small town in Kumaon, on the outer range of the Himalaya, and overlooking a beautiful lake 7,000 ft. above sea-level. Here a disastrous landslip occurred 1880, by which many lives, native and European, were lost.

NAIRN, *nārn:* royal burgh and cap. of a county in n.e. Scotland, where the river Nairn enters the Moray Firth. It commands a grand and extensive view of the coast of Ross-shire, including Cromarty Bay, nearly opposite. N. was regalized by William the Lion. It has little historical interest. It is noted for the excellence of its sea-bathing and artificial baths, in which it is equal, if not superior, to any town in n. Scotland, as a summer resort. The temperature is mild and equable. The inhabitants have remarkable immunity from epidemic diseases. There is a commodious harbor. The town has a literary soc., a museum, a newspaper, three branch banks, and a savings bank. It is conspicuous for good and cheap education. Pop. (1881) 4,165.

NAIRNSHIRE, *nārn'shēr:* small county on the sea-coast of n.e. Scotland; bounded n. by the Moray Firth, and on its other sides by the counties of Inverness and Moray, of the latter of which it anciently formed a part. It extends n. and s. 22 m., and 15 m. e. to w.; 215 sq. m. or 137,500 acres, of which about 26,000 are under cultivation. Pop. (1871) 10,225; (1881) 10,455.—Nairn is the only royal burgh in the county, but there are the villages of Cawdor and Auldearn. The soil is mostly light and sandy. There is, however, considerable agricultural activity, though the county is better known for cattle-breeding. An important cattle 'tryst' is held at Cawdor once a month during the greater part of the year. The climate of this county is distinguished for its salubrity, and the temperature is remarkably equable. The thermometer in the shade did not rise above 78° 3′, or fallen below 11° 2′, during a recent period of 20 years. According to the latest observations, the yearly rainfall did not amount to more than 26 in., the greatest fall being in Oct. and the least in April. At Brackla Distillery, 40,000 to 50,000 gallons of spirits are manufactured annually. The river Nairn runs through the county in a beautiful valley, which presents particularly attractive and romantic scenery in the neighborhood of Cawdor Castle, one of the residences of the Earl of Cawdor. This castle is of uncertain antiquity, and in excellent preservation. It was the residence of the ancient Thanes of Cawdor, one of whom is mentioned in *Macbeth*. About 1510, the estates belonging to the earldom passed by marriage from the old family of Calder into the hands of a son of the Duke of Argyle, and are still in the possession of his descendants. Not a few other objects of antiquarian interest are to be found in the county of Nairn.

Naissant.

NAISSANT, *nās'ant:* in heraldic blazon, an animal depicted as coming forth out of the middle—not like *Issuant* or *Jessant* (q.v.), out of the boundary line—of an ordinary.

NAITHLESS: another spelling of NATHLESS, which see.

NAIVE, *nâ'ēv* [F. *naïf* and *naïve*, ingenuous, lively—from L. *nativus*, natural, native]: having unaffected simplicity; artless; ingenuous. NAÏVELY, ad. *nâ'ēv-lĭ*, with unaffected simplicity. NAÏVETÉ, n. *nâ-ēv-tā'* [F.]: native simplicity; unaffected plainness; artlessness.

NA'JA HA'JE: see COBRA DA CAPELLO.

NAKAMURA MASANAWO (or NAKAMOORA MASAUWO): born about 1825, Tokio, Japan. He was educated at the university in his native place, and after acquiring a thorough knowledge of both the Japanese and Chinese language and literature, he studied Dutch for a while and then mastered English, copying a dictionary of the latter language with a pen. He taught in private

schools, held a professorship in a college, went to England 1866, where he studied and had the oversight of some Japanese students for two years. Returning to Japan he translated into his native language the constitution of the United States, Washington's Farewell Address, portions of Franklin's works, Mill on Liberty, and an anonymous work in favor of Christianity. He resigned his rank in the Samuria, joined the common people, and became a leader in various social and political reforms. He was made, 1875, manager of a normal school which had just been established for girls by the Empress of Japan. Among his later translations are *International Law* by Wheaton, and *Self-Help* by Smiles.

NAKED, a. *nā'kĕd* [Goth. *naquaths;* Ger. *nackt;* Icel. *necquidr;* L. *nudus*, naked: Gael. *nochd*, v. to uncover, adj. bare, naked]: bare; uncovered; plain; manifest; having no clothes on; defenseless; unassisted by glasses —applied to the sight; destitute; in *bot.*, without pubescence; applied to seeds not contained in a true ovary, also to flowers without any floral envelope. NA'KEDLY, ad. *-lĭ*. NA'KEDNESS, n. *-nĕs*, the condition of being naked; barenness; openness. NAKED EYE, the eye alone, or unassisted by glasses or a telescope. NAKED FLOORING, the timber-work which supports a floor.—SYN. of 'naked': bare; nude; destitute; unaided; unarmed; unprovided; evident; mere; simple; open.

NAKHICHEVAN-ON-THE-DON, *nâk-ē-shē-vân':* thriving town of s. Russia, govt. of Ekaterinoslav, on the right bank of the Don, near the mouth of that river, two m. e. of Rostov. It was founded 1779 by Armenian settlers from the Crimea, and had (1880) 16,258 inhabitants, mostly Armenians, belonging to the Greek-Armenian Church. The inhabitants are engaged in manufacture of silver ornaments and woolen goods, and there is extensive trade.

NAKSHATRA [Sanskrit, prob. compound of an obsolete base *naksha*, night, and *tra*, protecting, *literally* night-protecting; meaning properly star, as in the Veda]s: term applied to the asterisms lying in the moon's path, or to the mansions in which the moon is supposed to rest in her, or rather, according to Hindu notions, *his* path. The number of these asterisms was reckoned originally at 27, later at 28; and mythology transformed them into as many daughters of the patriarch Daksha, who became the wives of the moon: see MOON. Biot, the distinguished French astronomer, endeavored to show that the Hindu system of the Nakshatras was derived from the Chinese *sien;* but his theory, though supported by very learned arguments, has been refuted by Prof. Whitney of Yale Univ. in his notes to Burgess's translation of the *Sûrya-Siddhânta* (New Haven 1860), and by Prof. Müller in his preface to the 4th vol. of the *Rig-Veda* (Lond. 1862). There is scarcely room for doubt that the system of the Nakshatras originated from the Hindu mind.

NALA, *năl'ă*, Hind, *nŭl'a*: a legendary king of anc. India—a king of Nishadha—whose love for Damayantî, daughter of Bhîma, King of Vidarbha, and the adventures arising from, or connected with, it—the loss of his kingdom, the abandonment of his wife and children, and their ultimate restoration—have supplied several Hindu poets with the subject of their muse. The oldest poem relating to N. and Damayantî is a celebrated episode of the *Mahâbhârata* (q.v.), edited both in India and in Europe, and translated into Latin by Bopp; German by Kosegarten, Bopp, Rückert, and Meier; English by Dean Milman. The two other renowned poems treating of the same legend, but with far less completeness, are the *Nalodaya* (q.v.) and the *Naishadhacharita* of S'rî-Harsha.

NALODAYA: name of a Sanskrit poem prized by the modern Hindus. Its subject is the story of Nala (q.v.), but more concisely narrated than in the episode of the *Mahâbhârata*, whence its contents are borrowed: and its reputed author is Kâlidâsa (q.v.). Great doubts must attach to this authorship, if by Kâlidâsa the author of *S'âkuntala* is meant, and not some other poet bearing the same name; for the merits of this poem consist neither in elevation of thought nor in richness of fancy: they are sought for by the Hindus in its elaborate and artificial diction, and in its alliteration of every variety, which, to a European mind of culture and taste, would be no more than an intolerable jingle of sounds, devoid of poetical worth. The text of the poem, with a modern commentary, has been edited (Berlin 1830) by F. Benary and (Calcutta 1844) by W. Yates, who added to his edition a free metrical translation of the text, and an essay on Sanskrit Alliteration.

NAMAQUALAND, *nâ-mâ'kwâ-lănd*, GREAT: extensive region in s. Africa, n. of the Cape Colony, from the Orange river, lat. 29° 30′, to Walfish Bay, lat. 23°, and inland from the w. coast to the Kalihari Desert, comprising about 100,000 sq. m. It is inhabited principally by wandering tribes of Namaquas (q.v.). This region is drained chiefly by a large periodical water-course, called the Oup, Borradaile, or Great Fish river, which, running from n. to s. about 450 m., joins the Orange river nearly at right angles, about 90 m. from its mouth. Except in the n., where there are lofty plateaus, it is a most sterile and barren region, and along a coast-line of more than 400 m. does not present a single running stream; but a few little bays along the coast, such as Angra Pequena (where 300 sq. m. were, 1883, acquired by a German company for a 'trading colony'), Sandwich Harbor, and Walfish Bay, afford safe anchorages. The valley of the Oup is bounded on each side by ranges of flat-topped barren mountains, which eastward sink away into the waterless though wooded flats of the Kalihari Desert, and coastward stretch into vast sandy downs, against which the southern Atlantic beats an unceasing surf,

rendering landing very dangerous, and enveloping the coast in a perpetual mist. The chief productions of the region are cattle, for the rearing of which the country seems favorable. On the edge of the Kalihari, ivory and ostrich feathers are collected, and copper ore seems abundant in several localities. Guano is found at Ichaboe and many little islands on the coast, and considerable fisheries are carried on by Cape houses in many of the bays.

The lion, giraffe, rhinoceros, hippopotamus, and large game generally, are still found in N., though fast diminishing before the firearms of the Namaquas. The snakes are considered especially venomous. The gemsbok, eland, and other large antelopes, now almost unknown in the Cape Colony, are still numerous in the unfrequented wastes of this region. The climate is extreme, and though, on the whole, not unhealthful, is very trying to European constitutions. The water is generally brackish. The first English traveller in N. was Sir J. Alexander, who, 1837, traversed it from n. to s. See the travels of Andersson, Moffat, Campbell, and Le Vaillant. N. is virtually under the jurisdiction of the Cape Colony. The native tribes, numbering probably about 40,000 souls, speak the Namaqua language, purest type of the Hottentot.

NAMA'QUALAND, LITTLE: a division of Cape Colony s. of the Orange river, formerly part of the dist. of Clanwilliam, and included with the country n. of it under the general name of Namaqualand. It is very barren, covered with rugged volcanic-looking hills, through which the Gariep or Orange river appears, through some convulsion of nature, to have forced its way to the sea. Little N. has of late years afforded a very large supply of copper ore of excellent quality (in 1878 nearly 12,000 tons); but the mines, though well known to the Dutch 200 years ago, were not worked till after 1852. The principal river is the Orange of the colonists, which divides the Cape Colony from Great Namaqualand; all the other streams are merely periodical torrents, often dry for years. The seat of magistracy is at Springbok Fontein, about 80 m. from the principal harbor, Hondeklip Bay, and there are situated the very rich mines of the Cape Copper Company. Many scattered tribes of Namaquas and Bastard Hottentots roam the bank of the Orange river, and in the neighborhood of the mines are numerous Dutch farmers and English settlers. All the larger mammalia, except a few gemsbok, are extirpated; but troops of ostriches are still numerous on the grassy flats of the Bushman country. The geological features of this region are peculiarly interesting, and have been thoroughly explored by A. Wylie, on behalf of the Cape government. The rocks are generally of granite or gneiss, intersected with numerous veins of cupreous indications, and near the Orange river present many very curious features. The coast-line extends for 100 m. with a few little bays, such

as Port Nalloth and Hondeklip, where there is moderately safe anchorage, and generally presents a shore covered with low granite rocks. At Hondeklip Bay, a bowlder painted red forms a distinguishing landmark.

NAMAQUAS, *nâ-mâ'kwaz:* principal existing tribe of the race generally known under the name Hottentot. They inhabit Great Namaqualand, n. of the Gariep or Orange river, and the country a few m. s. of it, as far as the Kamiesbergen. They are a pastoral people of rather predatory habits, and live under the rule of their chiefs, whose powers, however, are very limited. Differing from the Bosjesmen Hottentots, the N. are a tall, well-made, active people, though presenting the usual peculiarities of the race, such as the light olive complexion, the oblique eye, and short tufted hair. They speak a dialect of the Hottentot language, which, however, differs considerably from that used by other tribes of that people. Mission stations of the Rhenish and Wesleyan societies have been for many years established among them, and in a few localities, near the Cape Colony, with considerable success; and the New Testament and some elementary works have been translated into the Namaqua dialect. On the n. borders of the regions that they inhabit, the N., under the chief Africaner, descendant of a fugitive slave from Cape Colony, have for many years kept up a predatory and bloody war with the tribes of Ovampos and Damaros, n. of Walfish Bay. The total number of N. cannot exceed 50,000 or 60,000, scattered over a region of at least 150,000 sq. m., and there is every prospect of the pure Hottentot tribes soon becoming extinct, or at least absorbed, being gradually supplanted by the more energetic and civilized Bastard races, who, in civilization and appearance, are little inferior to the ordinary Dutch Boer of Cape Colony. Many of the southern N. possess wagons and oxen, and are employed in the transport of copper ore from the mines of Little Namaqualand to the shipping port at Hondeklip Bay. A few of the peculiar customs of the Hottentot tribes, described by Kolben nearly 200 years ago, may be still traced among the more remote tribes of the N.; but contact with the Cape Colonists, and the efforts of the missionaries, have partially civilized this race, so that an ordinary Hottentot is quite as respectable a savage, or perhaps more so, than his Betjuans or Amakosa brethren.

NAMAYCUSH, *năm'ā-kŭsh* (*Salmo namaycush*): fish nearly allied to the salmon and trout, native of the great lakes and interior rivers of N. A. It is often taken of a size varying from 20 to 40 lbs., and is said sometimes to reach 60 lbs. It is esteemed for the table. It is caught at the same fisheries with the Whitefish (q.v.)

NAMBY-PAMBY, a. *năm'bĭ-păm'bĭ* [a familiar and colloquial expression]: a term of contempt applied by his enemies to the poetry of Ambrose Phillips about the close of the 17th c.; sentimentally weak, affectedly pretty, as poetry.

NAME, n. *nām* [Goth. *namo;* Dut. *naam;* Icel. *namn;* Fin. *nimi;* Skr. *nâman*, a name: F. *nom;* It. *nome*—from L. *nomen*, a name—from L. *noscĕrĕ*, to know]: that by which a person or thing is called or designated (see below): reputation; character; that which is commonly said of a person; a person; renown; fame; memory; a race or family: V. to designate or point out by some title; to mention by name; to specify; to call; to nominate. NAM'ING, imp. NAMED, pp. *nāmd.* NAME'LESS, a. *-lĕs*, without a name; anonymous. NAME'LESSLY, ad. *-lĭ.* NAM'ER, n. *-ėr*, one who. NAMELY, ad. *nām'lĭ*, that is to say. NAMESAKE, n. *nām'sāk*, one having the same name; one called or named after out of regard to another. CHRISTIAN NAME, or GIVEN NAME, the name that a person receives at baptism, being the first part of the name, as John, James, Margaret. SURNAME, *sėr'nām* [*sur*, beyond or upon, and *name*]: a name added to the Christian name, e.g., *Nisbet* and *Beattie*, in the names Robert *Nisbet* and William *Beattie.* IN NAME, in profession; not in reality. IN THE NAME OF, in behalf of; by the authority of. A PROPER NAME, in *gram.*, a name that can be applied to one person or thing only of the same kind or class, as John, London, Europe. TO CALL NAMES, to use opprobrious or reproachful language in speaking to. TO TAKE A NAME IN VAIN, to use the name lightly or profanely. NAME-PLATE, a polished metal plate on which the name of a person and his profession or trade are engraved, to be fastened on the front of a door, as a notification to the public.—SYN. of 'name, n.': distinction; note; appellation; title; denomination; epithet; designation;—of 'name, v.': to designate; denominate; term; call; mention; specify; nominate; style.

NAME: word designating a particular person or thing in distinction from other persons or things. A N. attached to a person is called a proper name. Names distinguishing one individual from another have been in use from the earliest ages of human society. Among the Jews, the N. given to a child either originated in some circumstance of birth, or was an expression of religious sentiment. Old Testament names almost all are original—i.e., given in the first instance to the person bearing them; but the Jews, like other nations, after accumulating a considerable stock of names, began to repeat them, and we find few names in the New Testament which had not been used before. In Old Testament times, it was an occasional practice to adopt a change of N. on the occasion of an important event in one's life.

The Greeks bore only one N., given on the tenth day after birth, which it was the right of the father to choose, and alter if he pleased. The earliest Greek names are generally expressive of some quality in high estimation, as valor, skill, wisdom, or gracefulness (Callimachus, excellent fighter; Pherecrates, strength bringer; Sophron, wise; Melanthus, black flower). In later times, when the faith in the gods was on the wane, names derived

from Apollo and Athene, or indicative of the favor of Olympus (Apollodorus, gift of Apollo), came more into fashion. The eldest son generally bore the name of his paternal grandfather, and the confusion arising from repetition of the same name was obviated by appending the father's name (either simply, or turned into a patronymic), the occupation, the place of birth, or a nickname.

The Romans at a very early period bore two names, and afterward every Roman citizen had three. The *prænomen*, like our Christian name, was personal to the individual—Caius, Marcus, Cneius; in writing, generally abbreviated to an initial C., M., or two letters, Cn. It was given in early times on the attainment of puberty, and afterward on the ninth day after birth. There were about 30 recognized prænomina. Women had no prænomen till marriage, when they took the feminine form of that borne by their husband. Every Roman citizen belonged both to a *gens* and to a *familia* included in that gens. The second name was the *nomen gentilicium*, generally ending in *-ius*, *-eius*, or *-aius*. The third name was the hereditary *cognomen* belonging to the familia. Cognomina were often derived from some bodily peculiarity, or event in the life of the founder of the family. A second cognomen, or *agnomen*, as it was called, was sometimes added for honorary distinction. In common intercourse, the prænomen and cognomen were used without the nomen gentilicium, as C. Cæsar for C. Julius Cæsar, M. Cicero for M. Tullius Cicero. The Roman names were in their origin less dignified and aspiring than the Greek; some were derived from ordinary employments, as Porcius (swineherd), Cicero (vetch grower); some from personal peculiarities, Crassus (fat), Naso (long-nosed); a few from numerals, Sextus, Septimus.

The Celtic and Teutonic names, like the Jewish and Greek, had been originally very significant; but at an early period their exuberance became checked; people contented themselves with repeating the old stock. While the speech of Europe was undergoing a transformation, the names in use remained the same; belonging to an obsolete tongue, their signification by-and-by became unintelligible to the people using them. Many are derived from 'God,' as Gottfried, Godwin; some from an inferior class of gods known by the title *as* or *ans*, whence Anselm, Oscar, Esmond; others from elves or genii, Alfred, Alboin, Elfric (Elf King). Bertha is the name of a favorite feminine goddess and source of light, from the same root as the word 'bright;' the same word occurs as a compound in Albrecht, Bertram. To a large class of names indicating such qualities as personal prowess, wisdom, and nobility of birth, belong Hildebrand (war brand), Konrad (bold in council), Hlodwig (glorious warrior), called by us Clovis, and the original of Ludwig and Louis. The wolf, the bear, the eagle, the boar, and the lion entered into the composition of many proper names of men, as Adolf (noble wolf), Arnold (valiant eagle), Osborn (God bear). Respect for

feminine prowess also appeared in such names as Mathilde (mighty amazon), Wolfhilde (wolf heroine). The spread of Christianity threw a number of the old names into comparative oblivion, and introduced new ones. The name selected at baptism was taken more frequently from the history of the Bible or the church than from the old traditional repertory, which, however, was never altogether disused. Many names, supposed to be local and very ancient, particularly in the Scottish Highlands, Wales, and Cornwall, are in reality corruptions of names of Christian origin in use elsewhere. Owen, Evan, and Eoghan (the latter often Anglicized into Hector) all seem to be forms of Johann or John. A change of name was sometimes made at confirmation.

Periods of religious and political excitement have had powerful influence in modifying the fashion in names. The Puritans would admit only two classes of names, those directly expressive of religious sentiment—Praise-God, Live-well—and names which occur in Scripture; these latter used indiscriminately, however obscure their meaning, or whatever the character of the original bearer of them. Old Testament names were used in preference to New, probably because they did not convey the notion of a patron saint. Old Testament names still are frequent in the United States, where exists a medley of Christian names from many sources. At the French Revolution, names supposed to savor of either loyalty or religion were abandoned, and those of Greek and Roman heroes came into vogue instead. The Augustan period of English literature gave temporary popularity to such feminine names as Narcissa, Celia, Sabina. In Germany, the names in use are particularly free from foreign admixture; they almost all are either of Teutonic origin, or connected with the early history of Christianity. In Britain, the number of names has, especially since the Reformation, been more limited than in most other countries. In some families of distinction, unusual names have been handed down from father to son for centuries —e.g., Peregrine among the Berties, and Sholto in the Douglas family. The accumulation of two or more Christian names did not become common till the present century, and another practice which has gained ground in Britain and the United States is the use of surnames as Christian names. More recently, various old names, particularly feminine names, e.g., Maud, Florence, Ethel, have been withdrawn from their obscurity, and resuscitated.

The use of fixed family *surnames* cannot be traced much further back than the latter part of the 10th c. They came into use first in France, particularly in Normandy. At the conquest, they were introduced into England by the Norman adventurers, and were general at the Domesday Valuation. Many of the followers of William had taken names from their paternal chateaux or villages on the other side of the Channel, names which were used with the French preposition *de* before them. Their

younger sons and others applied the 'de' to estates awarded them as their portion of the conquered country, and called themselves De Hastings, De Winton, etc., a prefix probably never in vernacular use in England, and completely discarded with the disappearance of Norman-French, unless in a few cases where it was retained for euphony, or from coalescing with the initial vowel, as in De la Bèche, Danvers (d'Anvers), Dangerfield (d'Angerville). When English was used in place of Norman-French, the 'de' was always rendered into 'of.' The affectation of resuming it in recent times is as unwarrantable in theory as in taste. Such a designation as Lord De Tabley of Tabley House is an unmeaning tautology. The Scotch have a more expressive designation when they say Colquhoun of that Ilk. In France and Germany, a territorial surname (denoted by 'de' or 'von') came, when surnames spread to all classes, to be the mark of nobility, so much so that in later times, when any one was ennobled by the sovereign, the 'de' was prefixed to his previously plebian and not territorial name. In Britain, the 'de' was never considered the test of nobility; the names of some of the most distinguished families were not territorial—e.g., Stewart, Butler, Spencer. In Scotland, surnames were scarcely in use till the 12th c., and were for a long time very variable. The assumption of surnames by the common people is everywhere of much later date than their use by noble (gentle) families. Even yet, they can hardly be said to be adopted by the people of the wilder districts of Wales.

There are many existing local surnames in Britain besides those derived from the names of the manors of the gentry or landholders. Farms, homesteads, the natural features of the country, all gave their names to those who resided at or near them; hence such names as Wood, Marsh, Dale. The preposition 'at' is in a few cases retained, as in Atwood, A'Court, Nash (atten-ash, i.e., at the ash). The travelling habits of the Scots account for such names as Inglis, Fleming, Welsh (the original of Wallace), applied to those who had visited foreign parts; and sometimes a Scotsman, wandering into England, returned with the acquired name of Scott.

A large class of surnames are patronymics, often formed by 'son,' or its equivalent in the language of the country, added to the Christian name of the father. Names of this sort often fluctuate from generation to generation. Alan Walterson had a son, Walter, who called himself Walter Alanson. The genitive case of the father's name sometimes served the same purpose, as Adams, Jones; and similarly in Italian, Dosso, Dossi. A fashion of using 'Fitz,' the equivalent of 'son,' before the ancestral name, as in Fitzherbert, prevailed temporarily in Normandy, whence it was imported into England. In the Highlands of Scotland, the prefix 'Mac' (Macdonald) served the same purpose, which, however, fluctuated far longer than the patronymic surnames of

England and the Lowlands; so also the 'O'' (grandson) of the Irish (O'Neil), and 'Ap' of the Welsh (Ap Rhys, otherwise Apreece). The 'de' of France had sometimes a similar origin, as in d'André, d'Hugues; and still more frequently the 'de,' 'dei,' or 'degli' of Italy—di Cola, di Giacomo.

Office, occupation, or condition, gives rise to surnames —e.g., Knight, Marshall, Page, Smith, Brewster, Shepherd; in Germany and Holland, Rauber and de Rogver (robber): and from such appellatives, patronymics may be again derived; thus, we have Smithson, de Maistre (master's son), M'Nab (son of the abbot), M'Pherson (son of the parson), del Sarto (son of the tailor), etc. So also personal qualities—Black, White, Strong, Stark, Lang (long), Littlejohn, Cruikshanks; and nicknames have frequently been perpetuated as surnames. We have also surnames derived from the signs and cognizances borne in the middle ages, not only by inns and shops, but by private houses. John at the Bell became John Bell; at Middleburg, in Holland, Simon, apothecary in the 'Drake,' or Dragon, became Simon Draek; hence, probably, the frequency of family names derived from animals, and also of those beginning with 'Saint;' though this last class may sometimes have had its origin in the first owner of the name dedicating himself to the service of the saint in question. In Scotland and Ireland, 'The' is a distinctive title borne by the heads of some old families—as 'The Chisholm,' 'The O'Connor Don.' In the Highlands of Scotland, the chief of a clan is usually addressed by the name alone in a marked manner: thus, 'Macleod' implies specially Macleod of Dunvegan, in Skye, head of the clan Macleod; 'Mackintosh,' in like manner, applies solely to Mackintosh of Moy, in Inverness-shire.

In England, the number of existing surnames approaches to 40,000, or about one to every five hundred individuals; in Scotland, there are far fewer surnames in proportion to the population. The remarkable predominance of certain surnames in certain localities—as Campbell, Cameron, Maclean in Argyleshire, Macdonald in Inverness, Mackay in Sutherland, Gordon and Forbes in Aberdeenshire, and Scott, Ker, Elliot, Maxwell, and Johnstone on the borders—arises from the clansmen having made a practice of taking the name of their chiefs, considering themselves members of their family by adoption, if not otherwise. Elsewhere than in Scotland, vassals often adopted the names of their lords, and servants those of their masters. Two or more surnames are often borne by one individual, in which case the paternal surname is placed sometimes first, sometimes last; and, in recent times, it is by the name which occurs last that the bearer of the two surnames is most frequently known.

The wife, in Britain and the United States, changes her surname to that of her husband on marriage. In continental Europe the husband often appends his wife's name to his own; and in Spain, the wife retains her own

name, while the son is at liberty to use either paternal or maternal name as he pleases, the choice usually falling on the best family.

Change of name.—Prior to the Reformation, surnames were less fixed than they have since become. Occasionally, younger sons, instead of retaining their patronymic, adopted the name of their estate or place of residence. A great matrimonial alliance was a frequent cause for adopting the patronymic of the wife. With the clergy, ordination was a common occasion of a change of name, the personal surname being exchanged for the name of the place of birth—thus, William Longe became William of Wykeham. In time of political troubles, a new name was often assumed for concealment; and in Scotland, the name of M'Gregor was proscribed 1664 by an act of the privy council. In modern times in Britian injunctions in settlements of land, and deeds of entail, are frequent grounds for a change of name, it being made a condition that the devisee or disponee shall assume a certain surname under penalty of forfeiture, a stipulation which the law recognizes as valid. In England, it was formerly usual to obtain a private act of parliament to authorize one to change his surname; and in later times authority for such a proceeding has generally been given by royal license, granted only on a reasonable ground being established for the alteration, to the satisfaction of the kings-at-arms, to whom a remit is made. It has sometimes been supposed that this royal license is necessary to legalize such a change, but the highest legal authorities have laid it down that there is nothing in the law of England to prevent any one, who may consider it for his interest so to do, to change his surname, or even his Christian name. Similarly in the United States, no legal process whatever is requisite to a change of name, since the principle is recognized that names are given not by law but by personal choice or by usage. The idea, lately prevalent to some extent, is erroneous, that an advertisement in a gazette or newspaper, or the execution of some deed, is a necessary form in order to effect a change of name. There are always great inconveniences in changing one's name, which sufficiently account for the general indisposition to do so, except from a questionable motive. As there is no law to prevent a person from changing his name, so on the other hand, there is no law to compel third parties to use the new name, and disputes and annoyances arising from such a state of things are matters of course. The change tends to a certain extent to destroy the means of identification after the lapse of years, which may or may not be the object desired. Notwithstanding these difficulties and inconveniences, there are many examples of persons who have succeeded after a few years in being generally known under a new name which has gained recognition from the public as well as from friends. The change of name, in general, produces no change whatever on the legal status. A party is equally punishable for swindling,

larceny, and other cognate offenses, whatever name he uses; and, on the other hand, if he is legatee, he is not prevented from establishing and receiving his legacy, whatever name he has adopted: in law the only requisite is identification. It follows that no person is punishable for using a new name, though it is sometimes an element for a jury to take into consideration when they are required to infer a particular motive of conduct. Though no legal process is necessary for change of name, the laws of various states have, as a public convenience for those desiring it, provided a process by which such change may receive legal sanction, through petition to the courts (N. Y.), to the probate or surrogate's court (several states), or to the legislature (Mass.).

Names of Places.—These, like names of persons, belong, in great measure, to the language of past races. All over Great Britain, a very large proportion are from the Celtic names for natural features of the country. From *Gwysg*, *afow*, *tam*, *tav*, *cluyd*—in the Celtic speeches equivalent to *water* or *river*—we have Esk, Avon, Wye, Thames, Tavy, Clyde. *Pen* or *Ben*, hill, gives rise to the names of hills in England and Wales (Penrhys, Penzance), and still more in Scotland (Ben Nevis). So, also, *cwm*, *comb*, valley—as is Cumberland, land of valleys. The memory of the Roman invasion has been preserved in the termination *-chester* (derived from *castra*, camp) in the names of towns, e.g., Manchester. Though surnames originated often in local names, the reverse process also occurred, as where *ville*, *ton* or *ington*, *ham*, or *burgh*, has been appended to the name of the owner of the land, e.g., Charleville, Johnston, Wymondham, Edinburgh (i.e., Edwin's burgh).

See Pott's *Die Personennamen und ihre Entstehungsarten* (2 vols. 1853: 2d. ed. 1859); Miss Yonge, *History of Christian Names* (1863); Lower, *On English Surnames* (1849); Innes, *Scotch Surnames* (1860); Bardsley, *Our English Surnames* (1873); *Curiosities of Puritan Nomenclature* (1880).

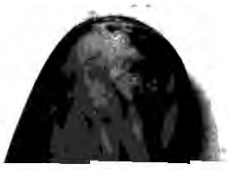
NAMUR, *nä′mėr*, F. *nȧ-mür′*: province of Belgium on the French frontier, between Hainault and Luxembourg; about 1,400 sq. m. The principal rivers are the Meuse—entirely intersecting the province—the Sambre, and the Lesse. N. presents generally an alternation of fruitful valleys and low hilly tracts; but in some parts, where the heights constitute offshoots of the Ardennes, and are densely wooded, they attain considerable elevation. With the exception of the land in the s.w., where are large tracts of bog and heath, the soil is extremely rich, yielding abundant crops and fine pasture. The chief products of N. are wheat, oats, hops, oil-yielding plants, and flax. Besides iron, copper, lead, and coal mines, N. has marble and slate quarries, and yields sulphur, alum, cadmium, alumina, flints, etc. It has good steel, iron, and smelting-works, breweries, paper-mills, etc. N. is divided into the three arrondissements, Namur, Dinant, and Philippeville. At the close of the 12th c., N. was united to Luxembourg, after having existed as an independent countship more than 150 years. Toward the middle of the 13th c., it passed by purchase to the House of Flanders, which retained possession till 1420; when, on the death of Count John III. without direct heirs, the countship, which was in extreme financial embarrassment, was purchased for 132,000 gold ducats, by Philip the Good, Duke of Burgundy, and subsequently shared the fate of the other Burgundian states.—Pop. (1880) 322,654.

NAMUR (Flem. *Namen*): episcopal city, cap. of the province of N., at the confluence of the Sambre with the Meuse, 35 m. s.e. of Brussels. The cathedral, or St. Aubin's, consecrated 1772, is one of the most beautiful churches of Belgium. N. has an acad. of painting, a conservatoire for music, two public libraries, a museum, a hospital for aged paupers, a theol. seminary, and 2 colleges, one conducted by Jesuits. The city was fortified from the earliest period of its history; and 1692, its defensive works were repaired and strengthened by Coehoorn, but were taken in the following year by Louis XIV. and Vauban: the latter added considerably to its original strength. The reputation of its citadel made N. a prized stronghold in every war of later times; and after having been gallantly defended by its French conquerors, 1815, against the Prussians under Pirch, it was finally restored to the Netherlands after the battle of Waterloo, and immediately put into thorough repair. The strong fortifications were razed 1866. N. is noted for its cutlery, its leather-works, and its iron and brass foundries.—Pop. (1882) 26,008.

NA′NAK, or NA′NEK: see SIKHS.

NANAS, *nŏh-nŏsh′*: town of Hungary, in the midst of extensive morasses, about 110 m. e.n.e. from Pesth. The people, partly Prot. and partly Rom. Cath., are employed in cattle-husbandry and agricultural pursuits. Pop. 11,300.

NANA SAHIB, *nâ'nâ sâ'ĉhĭb* (real name Dundhu Punt): a Hindu, one of the leaders of the sepoy revolt of 1857: b. abt. 1820; said to be the son of a Brahman from the Deccan; adopted as a son 1827 by Bajee Rao, childless ex-peishwa of Poona, thereby, according to Hindu law and custom, acquiring most of the rights of a legitimate son. He was educated as a Hindu nobleman—taught English, and brought much in contact with the European officers, in whose amusements he seemed fond of participating. A decision was, however, made by the govt. of Calcutta, that they should not recognize rights to pensions or indemnities acquired by adoption; in consequence, N. S. was refused the continuance of a pension of eight lacs of rupees, paid to his adopted father under a treaty made 1818. This is believed to have rankled in his mind, with slights that he received from the supercilious English youth with whom he came in contact. He was allowed to retain some of the state of a native prince—a retinue of 200 soldiers, with 3 field-pieces, and a fortified residence at Bithoor, 10 m. w. of Cawnpore. When the mutiny broke out 1857, May, he offered to assist the English, but instead, treacherously placed himself at the head of the mutineers. The European troops were induced, June 25, to capitulate to N. S., who promised that they should be sent down the Ganges in safety. They got on board boats provided for them, but had no sooner done so, than two guns were unmasked, and a murderous fire was opened on them. The sepoys were ordered to shoot the men, but to spare the women and children, who, when their husbands and parents had been shot, were removed to a house in Cawnpore. July 15, Sir H. Havelock, who had advanced to their assistance from Allahabad, defeated the sepoys in two engagements, one within 8 m. of Cawnpore; and N. S. next day directed that the women and children should be put to death, an order carried out with unparalleled atrocity. A long series of engagements against N. S. followed, in which he was always the loser, and he was ultimately driven beyond the English frontier into Nepaul. In 1860, his death was announced, but two years later, new movements were discovered, which were attributed to him, and it is not certainly known whether he is dead or alive. Several persons have been arrested on suspicion of being N. S., but in all cases a mistake has been made. A column has been erected at Cawnpore in memory of those who perished in the massacre.



NANCY, *năn'sĭ*, F. *nŏng-sē'*: beautiful town of France, since 1872 cap. of the dept. of Meurthe-et-Moselle, on the left bank of the river Meurthe, at the foot of wooded and vine-clad hills, 220 m. e. of Paris, on the Paris and Strasburg railway. It is divided into the old and new towns (the former irregular and with narrow streets, the latter open, regular, and handsome), and comprises also two suburbs. It contains many fine squares and imposing edifices, and owes much of its architectural ornamentation to Stanislaus Leczinsky, who, after abdicating the crown of Poland 1735, continued to reside here as Duke of Lorraine till his death 1766. His statue stands in the Place Royale, a fine square, surrounded by important public buildings, e.g., the Hôtel de Ville, theatre, etc. The gates of N. look more like triumphal arches than the ordinary entrances of a town. Among the institutions are the university-academy, the normal school, the school of medicine, the lyceum, the public library, and numerous art and scientific societies. There are cotton, woolen, and linen manufactures; but the principal industry is embroidering of cambric, muslin, and jaconet goods. N. is known to have existed in the 11th c. Two centuries later, it became cap. of the Duchy of Lorraine (q.v.). Charles the Bold was killed while besieging N. 1477.—Pop. (1856) 43,000; (1871) 52,000; (1881) 71,991.

NANDU, n. *năn'dô* [Brazilian word], (*Rhea*): the American ostrich; genus of S. American birds allied to the ostrich, cassowary, and emu; and most nearly to the ostrich, from which it differs in having the feet three-toed,

Nandu (*Rhea Americana*).

each toe armed with a claw; also, in being more completely feathered on the head and neck; in having no tail; and in having the wings better developed and plumed, and terminated by a hooked spur. The wings are indeed better developed than in any other of the *Struthionidæ*, though still unfit for flight. The neck has 16 vertebræ.

There are at least three species. The best known species (*R. Americana*) is considerably smaller than the ostrich, about five ft. high. It is of uniform gray color, except on the back, which has a brown tint. The male is larger and darker colored than the female. The back and rump are furnished with long feathers, but of a more ordinary kind than those of the ostrich. This bird inhabits the great grassy plains of S. America, s. of the equator as far as to lat. 42° or 43°, abounding on the banks of the La Plata and its more southern tributaries. Its range does not extend across the Cordilleras. It is generally seen in small troops. It runs with great celerity, using its wings in aid. It is polygamous, one male securing possession of two or more females, which lay their eggs in a common nest, or drop them on the ground near the nest, to which the male rolls them. Contrary to the usual habit of birds, incubation is performed by the male. The N. is shy and wary, but is successfully hunted by the Indians, generally on horseback. The flesh of the young is fit for food. The N. is capable of being domesticated. —A smaller and more recently-discovered species (*R. Darwinii*) has light-brown plumage, each feather tipped with white: it inhabits Patagonia. A third species (*R. macrorhyncha*) is distinguished by its large bill.

NANKEEN, or NANKIN, n. *năn-kēn′* [from *Nanking*, in China]: a buff-colored cotton cloth. NANKEENS′, plu. *-kēnz′*, trousers made of nankeen.—*Nankin*, a kind of calico, was formerly exported extensively from China to Europe and America, and said to be the manufacture of Nanking; the color, yellowish-buff, being favorite. It was supposed that the Chinese held a secret for dyeing this color, which was found to be remarkably durable; but it became known that it was not an artificial color at all, the cloth being made of a colored variety of cotton, produced occasionally in China and India. Artificially dyed N. cloths now form a considerable export from England to China. The color of artificial N. is produced by an elaborate process, in which the yarn or cloth is first dipped in a saturated solution of alum; then in a decoction of oak-bark; then in a bath of lime-water; next in a bath of nitro-muriate of tin. Another, less permanent, N. dye is produced by boiling annatto in a strong solution of pearl-ashes, and diluting with water to the required tint.

NANKING, *nân-kĭng′*: city, cap. of the province of Kiangsu, and formerly cap. of China, on the Yangtse river, 90 m. from the beginning of its estuary, nearly equidistant from Canton and Peking; n. lat. 32° 40′ 40″, e. long. 118° 47′. Its name signifies Southern Capital. Since the removal of the seat of govt. to Peking (Northern Capital), it has been called by the Chinese Kiangning-fu. The walls, of which only portions remain, inclosed an area nearly 20 m. in circumference, the greater part of which is entirely waste. They reached in many places a height of 70 ft., and were fully 30 ft. in thickness at the

base. According to Chinese accounts, the pop. of N. was formerly 4,000,000; but a more recent estimate made it 300,000. Of late the city has passed through so many vicissitudes, that it is impossible to ascertain its present pop. The inhabited portion of the walled area lies toward the w., several m. from the bank of the river. It is no longer possible to speak of N. in the language which former travellers used. The barbarous desolations to which it was subjected during the Tae-ping rebellion left it a sort of wreck, and one can only describe it as it was, before the victorious assault of the rebels, 1853, Mar. 19. N. is the seat of the vice-regal govt. for the provinces grouped under the name Kiangnan. Here, as elsewhere in China, there was, and again is, a Manchu garrison, or military colony, separated by a wall from that portion of the city occupied by the Chinese. Some of the finest streets of N. were in the Tartar city; several being nearly 40 ft. wide, having a space in the middle about 8 ft. in width, flagged with well-hewn blocks of blue and white marble, and on each side of this a brick pavement 14 ft. or more wide. A deep canal or ditch runs from the river directly under the walls on the w., serving to strengthen the defenses of the city on that side. The ancient palaces all have disappeared. The offices of the public functionaries were numerous, but, like the shops, presented the general features common to all Chinese towns. The objects most worthy the inspection of the traveller are found, in ruins, outside the precincts of the modern city. Among these is the summer palace of the Emperor Kienlung. It consisted of a number of one-story buildings, with spacious courts between, and flanked by smaller buildings on the sides. Enough remains to show that the workmanship was most elaborate and unique. When under cultivation, the spot must have been exceedingly beautiful. The tombs of the kings are remarkable for their sepulchral statues, which form an avenue to the graves; they consist of gigantic figures, like warriors cased in a kind of armor, standing on either side of the road, across which, at intervals, large stone tablets are extended, supported by huge blocks of stone instead of pillars. Among the buildings totally destroyed by the rebels was the far-famed Porcelain Tower. It was erected by Emperor Yungloh, to reward the kindness of his mother; the work, commenced in the 10th year of his reign (1413), was completed in 19 years. The board of works was ordered, according to the plan of the emperor, to build a tower nine stories high, the bricks and tiles to be glazed, and of 'fine colors;' and it was to be superior to all others, in order to make widely known the virtues of his mother. Its height was to be 322 ft. The ball on its spire was to be of brass, overlaid with gold, so that it might last for ever and never grow dim. From its eight hooks as many iron chains extended to the eight corners of its highest roof; and from each chain nine bells, suspended at equal distances apart; these, together with eight from the corners of each projecting roof,

amounted to 144 bells. On the outer face of each story were 16 lanterns, 128 in all; which, with 12 in the inside, made 140. It required 64 catties of oil to fill them. On the top of the highest roof were two brazen vessels, weighing together 1,200 pounds, and a brazen bowl besides, weighing 600 pounds. Encircling the spire were nine iron rings, the largest 63 ft. in circumference, the smallest 24 ft., altogether weighing nearly 5,000 lbs. In the bowl on the top were deposited one white shining pearl, one fire-averting pearl. one wind-averting pearl, one water-averting pearl, one dust-averting pearl, a lump of gold weighing 50 oz., a box of tea-leaves, 1,000 taels of silver, one lump of orpiment, altogether weighing 4,000 lbs., one precious stone-gem, 1,000 strings of copper coin, two pieces of yellow satin, and four copies of Buddhist classics. N. continued in possession of the Tae-ping rebels till the successes of the govt. troops under Major Gordon had crushed one after another all their outlying forces, when at length, 1864, July 19, the city was stormed by the imperialist soldiers under the viceroy Tseng Kwo-fan. The last blow was thus dealt to the Tae-ping rebellion, whose principal leader perished by his own hand amid the blazing ruins of the palace he had occupied for 11 years. Since its recapture, N. has resumed its former position as the seat of the vice-regal govt., but shows few signs of revival from its desolation. It has, however, been made headquarters of a large military force, and also of an arsenal—for manufacture of cannon and other warlike stores on the European model. Although specified in the Treaty of Tientsin (1858) as a river-port to be opened, little or nothing has come of this concession, and few foreigners are resident in N. Cotton grows abundantly in the neighborhood.

NANSEN, *nân'sėn*, FRITHJOF, PH.D.: Arctic explorer: b. 1861, Christiania, Norway. He attained high rank as zoologist; was curator 1882–89 in the Bergen Museum, and in the latter year returned from an expedition across Greenland. He is (1890) preparing to take command of an expedition being fitted out by the Norwegian govt. The vessel will be small, very strong, and of a shape best fitted to resist the pressure of ice: it will have a steam engine for use when needed, and carry a stock of coal to last five years. The party is to leave Norway 1891, Feb., and will be conducted on the recently developed theory that there is an undercurrent across the Arctic Sea from the archipelago of New Siberia to Greenland. It is proposed to enter the open sea in Sep., be frozen in when the ice forms, and be swept along with it when the ice is carried off by the current. It is hoped that the expedition can return in two years. N. has written several important zoological papers and a history of his expedition to Greenland.

NANTASKET, *năn-tăs'kĕt:* peninsular projection into Massachusetts Bay; abt. 5 m. in length. It is about 9 m. from Boston by water, and is largely a beach admirable for sea-bathing, and attracting crowds of visitors to its summer hotels.

NANTES, *nănts*, F. *nŏngt* (anc. *Namnetes*, or *Nannetes*): important seaport town of France, cap. of the dept. of Loire-Inférieure; on the right bank of the Loire, 30 m. from its mouth, at the confluence with it of the Erdre and the Sèvre-Nantaise, navigable streams. Besides railways, there is communication with the interior by steamers on the Loire. The natural beauties of the site have been much improved by art, and now, the noble river on which the town is placed, covered with craft of every size and description, the islands that stud its channel, the meadows that skirt its banks, and the bridges (more than 16) that cross it and its tributaries here, combine to make a highly picturesque scene.—N. contains numerous squares and churches. Several districts of the town are nearly as fine as the best districts of Paris, the old town having been pulled down between 1865 and 70. This town possesses numerous striking and beautiful buildings; chief among which are the cathedral of St. Pierre, containing the splendid monument of Francis II., last Duke of Bretagne, and of Marguerite, his wife; and the old castle, built 938, temporary residence of most of the kings of France since Charles VIII. There is a public library containing 50,000 vols.; a museum of paintings; and a museum of natural history. The quays, lined on one side with houses, and in some parts planted with trees, afford an agreeable and interesting promenade of about two miles. The most beautiful promenade, however, formed by the Cours St. Pierre and the Cours St. André, extends from the Erdre to the Loire. It is planted with four rows of trees, bordered with lines of palatial houses, and ornamented with statues. The harbor, 1,968 yards in length, is capable of accommodating more than 200 vessels. Formerly, vessels of no more than 200 tons could reach the port, all vessels of greater burden unloading at Paimbœuf, at the mouth of the river; but within recent years, much has been done by dredging for the improvement of the river-bed, and large vessels can now reach the harbor. The chief manufactures of N. are varieties of linen and cotton fabrics, calicoes, flannels; musical, mathematical, and optical instruments; refined sugar and salt, chemical products, cordage, etc. In sugar manufacture N. stands next to Paris and Marseilles. It contains tanyards, copper foundries, brandy distilleries, etc., and numerous establishments engaged in the various manufactures to which a port gives rise, as ship-building, the preparation of preserved meats, etc. In 1872, the imports were valued at 70,000,000 of francs, the exports at 55,000,000. In 1880 the commercial movement exceeded 400,000 tons. Pop. (1881) 117,555.

NANTES, EDICT OF: famous decree published in Nantes by Henri IV. of France 1598, Apr. 13, which secured to the Prot. portion of his subjects freedom of religion. Among its more important provisions were—liberty to celebrate worship wherever Protestant communities already existed; to establish new churches, except in Paris and the surrounding district, and in the royal residences; and to maintain universities, or theological colleges, of which they had four, those at Montauban, Saumur, Montpellier, and Sedan; adherents of the Reformed faith were also to be eligible to all civil offices and dignities, but, on the other hand, they were not allowed to print books on the tenets of their religion, except in those places where it existed; and they were obliged to outwardly celebrate the festivals of the Rom. Cath. Church, and to pay tithes to its priesthood. From this period, the Reformers or Huguenots (who then counted 760 churches) had a legal existence in France, but gradually their political strength was crushed by the mighty genius of Richelieu—who, however, never dreamed of interfering with their liberty of worship. Neither did his successors, Mazarin and Colbert; but under the influence of a 'penitence,' as corrupt and sensual as the sins which occasioned it, Louis XIV., after a series of detestable *Dragonnades*, signed a decree for the revocation of the edict, 1685, Oct. 18.—The result of this despotic act was that, rather than comform to the established religion, 400,000 Protestants—among the most industrious, the most intelligent, and the most religious of the nation—quitted France, and took refuge in Great Britain, Holland, Prussia, Switzerland, and America. The loss to France was immense; the gain to other countries, no less. Composed largely of merchants, manufacturers, and skilled artisans, they carried with them their knowledge, taste, and aptitude for business. From them England, in particular, learned the art of manufacturing silk, crystal glasses, and the more delicate kinds of jewelry.

NANTICOKE, *năn'tĭ-kōk:* borough, Hanover tp., Luzerne co., Penn.; on the n. branch of the Susquehanna river; 7 m. s.w. of Wilkesbarre. It is accessible by the Central railroad of New Jersey, the North and West Branch of the Pennsylvania railroad, and the Bloomsbury division of the Delaware Lackawanna and Western railroad. There are also steamboat lines to Wilkesbarre and Plymouth, on the Susquehanna river. N. is noted for its anthracite coal mines. The principal business is conducted by the Susquehanna Coal Co., employing about 5,000 men and boys. The total output of coal is about 1,000,000 tons per annum. N. has 1 bank, 2 newspapers, water-works, public park, 14 church buildings, and 5 public-school buildings. Pop. (1880) 4,000; (1890) 10,050.

NANTUCKET, *năn-tŭk'ĕt:* island and town on the s.e. coast of Mass., 18 m. s. of Cape Cod, 85 m. s.e. of Boston, 8 m. e. of the island of Martha's Vineyard. N. is of somewhat triangular shape, 15 m. long and an average of 4 wide; 50 sq. m. It was bought from the Indians by Thomas Macy, 1659, for $150 and two beaver-hats. N. was at one time a great seat of the whale fishery, having (1775) 150 whaling vessels; but this industry declined after 1846, and since the civil war has become extinct. The harbor is commodious and safe. The soil is mostly sandy, and trees are very few; but the exhilarating sea-air has drawn large numbers of summer visitors. The town has banks, public halls, public schools, two newspapers, public library, marine museum, and churches of various denominations. A daily steamer to Wood's Holl, on Cape Cod, gives connection with a railway to Boston. Pop. (1880) town 3,727.

NANTWICH, *nănt'wĭch* or *năn'tĭch:* small market-town of Cheshire, England, on the Weaver, 20 m. s.e. of Chester. Many of its houses are interesting from their age and construction, being of timber and plaster, with overhanging upper stories. The parish church, one of the finest country churches in England, was thoroughly restored 1864 at great cost. N. was famous in former times for its brine-springs and salt-works. Shoes, gloves, and cotton goods are manufactured, and malting is carried on. Pop. (1871) 6,673; (1881) 7,488.

NA'OS (Gr. dwelling): cell or inclosed chamber of a Greek temple.

NAP, n. *năp* [AS. *hnoppa;* O.Dut. *noppe*, the flock or nap of cloth: Norw. *napp*, shag, pile; *nappa*, to pluck a fowl: Dut. *noppen;* Sw. *noppa;* F. *noper*, to nip off the knots on the surface of cloth]: the woolly or smooth hairy substance on the surface of cloth; the downy substance on plants. NAP'PY, a. *-pĭ*, having much nap; in *Scot.*, elevated with liquor: N. in *Scot.* and *OE.*, strong ale. NAP'LESS, a. *-lĕs*, without nap; threadbare. NAP'PINESS, n. *-pĭ-nĕs*, abundance of nap.

NAP, n. *năp* [Ger. *knappen*, to move to and fro: Swiss, *gnappsen*, to nod: Icel. *hnipna*, to drop, to despond]. a short sleep: V. to have a short sleep; to feel drowsy. NAP'PING, imp. taking a short sleep; slumbering. To BE CAUGHT NAPPING, to be taken by surprise. NAPPED, pp. *năpt.*

NAP, n. *năp* [AS. *cnæp* (see NAPE)]: in *OE.*, a protuberance or knob; the top of a hill.

NAPE, n. *nāp* [AS. *cnæp*, the top of a thing, the brow of a hill: W. *cnap;* Icel. *hnappr*, a knob, a boss]: the prominent joint of the neck behind; the back of the neck.

NAPERY, n. *nā'pĕr-ĭ* [OF. *naperie*, the office in a household for providing table-linen: F. *nappe*, a table-cloth: It. *nappa*, a table-cloth; *nappe*, the ribbons or tassels of a garment: mid. L. *napa*, a cloth, corrupted from L. *mappa*, a clout]: made-up linen cloth in general; table-linen.

NAPHTALI, *năf'ta-lī*, TRIBE OF: named from one of the sons of Jacob. At the period of the Exodus it was the sixth of the 12 tribes, numbering 53,400 adult males; but during the long journey in the wilderness it diminished in both actual and relative importance. It joined with the tribes of Dan and Asher in forming the 'camp of Dan,' which is said to have had an ensign in the form of a serpent, upon which was the inscription 'Return, O Jehovah! unto the many thousands of Israel.' Upon reaching the promised land the tribe numbered only 45,400 men able to bear arms. It was assigned to the n.e. portion of Palestine, one of the most beautiful and most fertile portions of the country. It made a valiant defense against the invasion of the Canaanites, and the heroism of the tribe and its great leader Barak is recorded in the Song of Deborah (Judges v.). The tribal history practically closed about B.C. 730, when Tiglath Pileser carried the people captive to Assyria; but after the captivity, the region which they had occupied was thickly settled by Jews, and this portion of Palestine was the scene of a large part of the public ministry of Christ.

NAPHTHA, n. *năp'thă* [Gr. and L. *naphtha*—from Ar. *naft*, bitumen: from *nafata*, to exude]: a variety of bitumen, thin, fluid, and highly inflammable, used largely as a solvent for caoutchouc; rock-oil (see below). NAPHTHALIC, a. *năp-thăl'ĭk*, applied to an acid obtained from naphthaline. NAPHTHALINE, n. *năp'thăl-ĭn*, or NAPH'THALENE, n. *-ēn*, a soft, grayish-white, flaky, crystalline substance found incrusting the pipes employed in the rectification of coal-tar.

NAPH'THA: term with no absolutely distinctive application in either chemistry or commerce; applied originally to a liquid, composed of hydrocarbons, exuding from the soil in certain parts of Persia. The term is now used to designate various substances. Crude Russian petroleum is often so called. The lighter products of the distillation of coal-tar and of Petroleum (q.v.) are termed coal-tar N. and petroleum N., respectively: these are hydrocarbons. Wood alcohol, or methyl alcohol, is often termed in trade wood naphtha, though containing oxygen and therefore differing from the other naphthas. In the arts, N. of the first-named type is used as a cleaning agent: sometimes on a very large scale, as in naphtha laundries, where carpets and goods of all kinds, and even furniture, are subjected to its action to remove grease and destroy moths; in blast lamps as a fuel; in special burners as a light-producer; and in gas-works to enrich gas and contribute the necessary illuminating power to water-gas. The last-named use consumes vast quantities. Water-gas works, now in operation all over the United States, employ 4 to 6 gallons of N. for every thousand cubic ft. of gas made. Its very ready vaporization and the inflammability of its vapor have occasioned many fatal accidents. N. is sometimes mixed with kerosene as an adulterant, making the fluid highly dangerous.

NAPH'THALINE GROUP or SERIES: series of organic compounds or hydrocarbons whose starting-point chemically is *Naphthaline* ($C_{20}H_8$), a substance of great interest in the history of organic chemistry, from its being that on which chiefly Laurent founded his Theory of Substitutions. It may be obtained in various ways, but is most easily and abundantly produced from the last portions of the distillate of coal-tar, which become semi-solid on cooling. Of the liquid part of this mass riddance is had by pressure, and the naphthaline is then taken up by hot alcohol, from which it is obtained in a pure state by crystallization and sublimation.

Naphthaline crystallizes in large, thin, rhombic plates, which are unctuous to the touch and have a pearly lustre. Exposed to light under a glass covering, it gradually sublimes at an ordinary temperature in splendid crystals. It has a somewhat tar-like odor, and a pungent and somewhat aromatic taste. It fuses at 174° F., and boils at 424° F. Its specific gravity, in the solid state, is 1·15, and as a vapor 4·528. It is not very inflammable, and when ignited burns with a white smoky flame. It is insoluble in water, but dissolves readily in alcohol, ether, and the fixed and essential oils.

By acting on naphthaline with an excess of sulphuric acid, we obtain *sulpho-naphthalic acid* $C_{10}H_7.SO_3.H$, from which, by substitution processes, a large number of compounds are produced. With nitric acid, naphthaline yields nitro-naphthaline, $C_{10}H_7(NO_2)$, binitro-naphthaline $C_{10}H_6(NO_2)_2$, and trinitro-naphthaline $C_{10}H_5(NO_2)_3$, the group (NO_2), or its multiples, being substituted for one, two, and three equivalents of the hydrogen of the naphthaline. The final product of the prolonged action of boiling nitric acid on naphthaline is a mixture of oxalic and *naphthalic* or *phthalic acid;* the reaction being shown by the equation:

$$\overbrace{C_{10}H_8}^{\text{Naphthaline.}} + \overbrace{O_8}^{\text{Oxygen.}} = \overbrace{C_2H_2O_4}^{\text{Oxalic Acid.}} + \overbrace{C_8H_6O_4}^{\text{Naphthalic Acid.}}$$

This acid is obtained also by the continued action of nitric acid upon alizarine, which is an important fact, since it indicates the connection between naphthaline and the coloring matter of madder.

Laurent has discovered a very numerous series of substitution compounds formed on the type of naphthaline, into the composition of which chlorine enters. They are of little practical importance, though their investigation has exerted a remarkable influence upon the progress of organic chemistry.

NAPIER, *nā'pĭ-ĕr:* chief port and city of the provincial dist. of Hawke's Bay, New Zealand, on the s.e. coast of North Island, about 12 m. from the s. end of the bay, about 200 m. by sea from Wellington. The town was named from Sir Charles James Napier (q.v.). There is a railway 70 m. to Makatuku. The place is thriving, though the harbor is very poor. Pop. (1881) 5,756.

NA'PIER, Sir CHARLES, K.C.B.: English admiral: 1786, Mar. 6—1860, Nov. 6; b. at the family seat Merchiston Hall, co. of Sterling, Scotland; son of the Hon. Capt. Charles N., R. N., who was second son of Francis, fifth Lord Napier: N. was also cousin of Sir Charles James N. (q.v.) and of Sir William Francis Patrick N. At 13, he went to sea as a naval volunteer. In 1808 he received the command of the *Recruit*, 18 guns, and had his thigh broken by a bullet. He kept up a running fight, in his 18-gun brig, with the rearmost of three French line-of-battle ships, the *D'Hautpoult*, which escaped from Guadeloupe, and was thus instrumental in her capture. This obtained him a post-captaincy; but being thrown out of active service, he served ashore as a volunteer in the Peninsular army, and was wounded at Busaco. Commanding the *Thames* 1811, he inflicted an almost incredible amount of damage on the enemy in the Mediterranean, and also conducted several desperate land operations with marked success. In 1814 he was ordered to America, and led the way in the hazardous ascent and descent of the Potomac. He afterward was active in the operations against Baltimore. In 1829 he received the command of the *Galatea*, a 42-gun frigate, and was employed 'on particular service' on the coast of Portugal. Becoming acquainted with the leaders of the constitutional party, he accepted the command of the fleet of the young queen; and, by defeating the Miguelite fleet, he concluded the war, and placed Donna Maria on the throne. He was made admiral-in-chief of the Portuguese navy, and attempted to remodel it; but official and corrupt influence was too strong for him, and he returned to England. In the war between the Porte and Mehemed Ali, he organized a land force, with which he stormed Sidon, and defeated Ibrahim Pasha among the heights of Mt. Lebanon. He took part in the naval attack on Acre, and did not hesitate to disregard the orders of his chief, Admiral Stopford, when he saw the way to bring the battle to a speedy termination. He next blockaded Alexandria, and concluded a convention with Mehemet Ali. In 1847 he received the command of the Channel fleet. When the Russian war began, he was sent out to command the Baltic fleet; but the capture of Bomarsund failed to realize the high expectations formed of N.'s exploits. He twice sat in parliament, and never ceased his effort for reform in naval administration. See his *Life and Correspondence* (2 vols. Lond. 1862).

NA'PIER, Sir CHARLES JAMES, G.C.B.: 1782, Aug. 10—1853, Aug. 29; b. Whitehall, Westminster: English general, one of several brothers distinguished for bravery, three of whom—Charles, William, and George—were known in the Peninsular war as 'Wellington's colonels;' sons, by a second marriage, of Hon. Col. George Napier, grandson of Francis, fifth Lord Napier, who was fifth in descent, but through two females in succession, from John N., inventor of Logarithms. Before Charles had finished his 12th year, he received a commission in the

22d foot. His first service was in Ireland, where he assisted in putting down the rebellion. He commanded the 50th foot during the retreat on Corunna; and at the fatal battle in which Sir J. Moore fell, he was wounded in five places and made prisoner. Marshal Ney dismissed him, with permission to go to England on parol. On his return, he engaged in literary works, and even wrote a historical romance. In 1811 he returned to the Peninsula. At Coa, where he fought as a volunteer, he had two horses shot under him. At Busaco he was shot in the face, having his jaw broken and his eye injured. He recovered in time to be present at the battle of Fuentes d'Onoro and the second siege of Badajoz. After distinguishing himself in innumerable skirmishes, the daring soldier returned to England. He next took part in a fighting cruise off the Chesapeake, capturing American vessels, and making frequent descents upon the coasts. He did not return to Europe soon enough for Waterloo, but was engaged in the storming of Cambray, and accompanied the army to Paris. After the peace he was, 1818, made gov. of the island of Cephalonia, and administered its affairs with great energy and intelligence. Being, however, of an excessively combative disposition, he became embroiled with the authorities at home. In 1841 he was ordered to India to assume the command of the army at Bombay. This was the most splendid period of his career, resulting in the conquest of Scinde against terrible odds. His destruction of a fortification called Emaun Ghur, 1843, was described by the Duke of Wellington as one of the most remarkable military feats he had ever heard of. The fearful battle of Meanee followed, where N., with 1,600 English and sepoys, defeated near 30,000 Beloochees, strongly posted, with the loss of 6,000 men. The ameers surrendered, except Shere Mahomed, who brought 25,000 men into line of battle at Hyderabad. N. had only 5,000 men, but in three hours his little army gained a decisive victory. A few days afterward, N. was in the palace of the ameers, and master of Scinde. He was fortunate in possessing the entire confidence of Lord Ellenborough, who made him gov. of Scinde. His civil administration was scarcely less remarkable or less successful than his military operations. He gained the reverence of the inhabitants, but soon became engaged in an acrimonious war of dispatches with the directors. In 1847 he returned to England. After attending a series of festivals in his honor, he lived in retirement until the disasters of the last Sikh war caused the eyes of his countrymen to be turned to the hero of Scinde as the deliverer of the British Indian empire. He went to India, but found on his arrival that the Sikhs had been routed. He now turned his attention, as commander-in-chief of the army in India, to the subject of military reform. He bade a final adieu to the East 1851, and returned to his native country, where he resided until his death, at his seat, at Oaklands, near Portsmouth. He had then attained the rank of lieut.-

gen., was G.C.B., and col. of the 22d foot. It is remembered to his honor that he was the first English general who ever recorded in his dispatches the names of private soldiers who had distinguished themselves, side by side with those of officers. Brave to rashness, ready alike with tongue, pen, and sword, fiery and restless in temper, yet with a generous spirit, quarrelsome with his superiors, but beloved by his soldiers, and of a strangely wild yet noble and striking appearance, N. was one of the most remarkable men—the hero—of his time. His statue was, after his death, erected in Trafalgar Square. —The story of his *Conquest of Scinde* has been written by his brother, Lieut.Gen. Sir WILLIAM FRANCIS PATRICK N., K.C.B. (1785, Dec. 17—1860, Feb. 12), who served in the Peninsular campaign, and was engaged 1824–40 in preparing his *History of the Peninsular War*, the greatest military history in the English language. He died at Scinde House, Clapham, and was followed in a few weeks to the tomb by his wife, Lady Napier, niece of the great Charles James Fox. Her extraordinary skill in translating French documents written in cipher, and her indefatigable labors as her husband's amanuensis, are touchingly commemorated in the preface to the edition of the *History of the Peninsular War* published 1851.

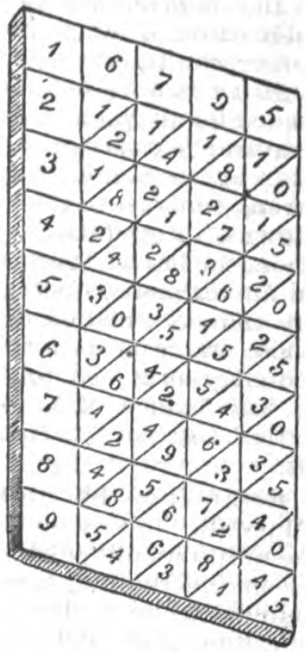
NA'PIER, JOHN, Laird of Merchiston: 1550–1617, Apr. 4; b. Merchiston Castle, near Edinburgh; of an old family. After attending the course in arts at the Univ. of St. Andrews, he travelled on the continent, probably studied at the Univ. of Paris, and returned to his native country highly informed and cultivated, for the age. Declining all civil employments, for which his many accomplishments eminently fitted him, he preferred the seclusion of a life of literary and scientific study. From this time his history is a blank till 1593, when he published his *Plaine Discouery* (or 'Interpretation') *of the whole Reuelation of St. John* (Edin. 5th ed. 4to, 1645), a work of great acuteness and ingenuity, but not in any sense a 'plaine discouery' of the Apocalypse. In this work he takes strong Prot. ground. In the dedication to King James VI., he gave his majesty some very plain advice regarding the propriety of reforming his 'house, family, and court;' and on republishing the work, he added a supplement, resolving 'certaine doubts mooved by some well-affected brethren.' About this time he seems to have given much time to the invention of warlike machines; but these inventions were never perfected, probably from motives of humanity. Like other eminent men of the time, N., though a strict Presbyterian, seems to have been a believer in astrology and divination; but there is no satisfactory proof that he ever practiced these arts. In 1596 he proposed the use of salt as a fertilizer of land, an idea which, though scouted at the time, is now generally received. Another large blank in his history here occurs, and terminates 1614, at which date he first gave to the world his famous invention of Logarithms (q.v.), in a treatise entitled *Mirifici Logarithmorum*

Canonis Descriptio (4to, Edin.). This was followed by *Rabdologiæ, seu numerationis per Virgulas libri duo* (Edin. 1617), detailing an invention for simplifying and shortening the processes of multiplication and division. See NAPIER'S BONES. He prepared a second work on Logarithms, showing their mode of construction and application, with an appendix containing several propositions of spherical trigonometry, and those formulæ now known by his name. This work was published after his death by his son Robert, under the title *Mirifici Logarithmorum Canonis Constructio, etc., quibus accessere Propositiones ad Triangula sphærica faciliore calculo resolvenda, etc.* (Edin. 1619), and along with the *Canonis Descriptio.* The latter work is included in Baron Masere's extensive collection, *Scriptores Logarithmici* (Lond. 1808). N. was the leading British man of science of his time. N.'s eldest son, Archibald, was raised to the peerage as the first Lord Napier by Charles I. 1627, and his descendants still bear the title. Two lives of N. have been published, the one by the Earl of Buchan (1787) and the other by Mark Napier (1834).

NA'PIER, The Right Hon. Sir ROBERT CORNELIS, Baron Napier of Magdala: b. Ceylon, 1810, Dec. 6. He was educated at the military college at Addiscombe. He entered the Bengal engineers 1826, served in the Sutlej campaign, was wounded while acting as chief-engineer at the siege of Moultan, and had a prominent share in the battle of Gujrat. As chief-engineer of the Punjab, with the rank of col., he greatly developed the resources of the country. During the Indian mutiny, he was chief-engineer in Sir Colin Campbell's army, and especially distinguished himself at the siege of Lucknow. For his services in the Chinese war of 1858, he was made maj.gen. and K.C.B. As commander of the expedition in Abyssinia 1868, he achieved brilliant success, both by his whole management of the short campaign and in the storming of Magdala, which ended it. On his return he received the thanks of parliament, an annuity of £2,000, and a peerage. In 1870 he was appointed commander-in-chief of the forces in India, and nominated a member of the Indian council. In 1877 he was made gov. of Gibraltar.

NA'PIER'S BONES: invention of the famous John Napier (q.v.) of Merchiston, for the purpose of performing mechanically the operations of multiplication and division. The 'bones' were narrow slips of bone, wood, ivory, or metal, about 3 inches long by 3-10ths of an inch in breadth, and divided by transverse lines into nine compartments; each of these compartments being divided into two portions by a diagonal line running from the upper right hand to the lower left hand corners. The 'bones' were divided into sets, all those of one set having the same digit occupying the top compartment, and the several multiples of that digit occupying in order the eight lower compartments; when the multiple consisted of two figures, these were placed one on each side of the

diagonal line. There was necessarily a set of bones for each digit. There was also another rod similarly divided into compartments, in which were placed the nine digits; this was called the *index-rod.* Multiplication was per-



Napier's Bones.

formed as follows: e.g., if 6795 is to be multiplied by 97834, four rods (see fig.) whose top digits were 6, 7, 9, 5 are selected, and arranged in the order of the figures in the multiplicand, and the index-rod placed alongside them, as in the figure; the several figures of the multiplier are then sought for on the index-rod, the two lines of figures opposite each figure on the index are then added together diagonally, and the five sums thus obtained are arranged as follows:

```
9|61155
7| 47565
8|  54360
3|   20385
4|    27180
 664782030 = the product required.
```

Division is performed in an analogous manner. The contemporaneous invention of logarithms for the same purpose caused N. B. to be overlooked, and they are now little used.

NAPIFORM, a. *nā'pĭ-fawrm* [L. *napus*, a turnip; *forma*, a shape]: turnip-shaped.

NAPKIN, n. *năp'kĭn* [F. *nappe*, a table-cloth, and *kin*, a dim. termination (see NAPERY)]: a cloth used for wiping the hands or mouth at table; a handkerchief. **NAPKIN-RING**, a ring used to inclose a napkin at table.

NAPLES, *nā'plz:* province of the kingdom of Italy. The Italian provinces (formerly kingdom) of N. and Sicily, or the Two Sicilies, occupy the s. end of the Italian peninsula, and consist of the continental territory of N. and the insular dependency of Sicily. For the distinctive physical features of N. and Sicily, see the titles of the different provinces of Italy: also SICILY. They are favored by nature with a salubrious though almost tropical climate, unbounded fertility, and teeming population; and they present natural features of rare attractiveness. The rural population are an acute, frugal, and laborious race, and form a strong contrast to their idle and debased brethren of the towns. For statistics of products, exports, and population, see ITALY: SICILY. N., in ancient times, was divided into numerous petty states independent of each other, and its inhabitants were of various races. Many of these states arose from Greek colonies, founded in the country previous to B.C. 7th c. The ancient historical importance of N. is attested by the splendor of its cities, and the warlike renown of its population. On its conquest by the Romans, the great Neapolitan cities severally adopted the municipal, federative, or colonist form of government, and gradually assimilated their laws and customs to those of their conquerors. After the downfall of the Western Empire, N. was seized by Odoacer, but soon afterward (A.D. 490) it was subjected by the Goths, and in the following c. by the Lombards, who established in it various independent duchies, Benevento, Spoleto, Salerno, Capua, etc. Most of these were overthrown by invading bands of Arabs, Saracens, and Byzantines, who were in turn expelled, and the whole country subdued by the Normans in the 11th c. The Normans subsequently erected N. and Sicily into a kingdom, and established a new political, ecclesiastical, and military system. To the Norman dynasty succeeded that of the Hohenstaufen, whose rule was marked by an immense intellectual and social advancement of the people; but the vindictive enmity with which the papal see regarded this dynasty led to the invasion of N. by Charles of Anjou, who, notwithstanding the heroic resistance of King Manfred (q.v.), by the battle of Benevento (1266) annihilated the power of the Hohenstaufen. The ascendency of Charles of Anjou was further effectually secured by the treacherous defeat and decapitation (1268) of Konradin (q.v.), last male-heir to the throne. By the *Sicilian Vespers* (q.v.) the island of Sicily was, however, wrested 1282 from his grasp, and became an appanage of the Spanish crown. The predominance the Neapolitan Guelph or papal party during the glorious reign of Robert I., patron of Dante and Boccaccio; the depraved libertinism of his heiress and granddaughter Joanna; the fearful ravages committed by predatory bands of German mercenaries and by the plague; the futile attempts of the Anjou sovereigns to recover Sicily, and the envenomed feuds of rival claimants to the throne; are the leading features of the history

of N. during the rule of this dynasty, which expired with the profligate Joanna II. 1435; and was followed by that of Aragon, which had ruled Sicily from the time of the Sicilian Vespers. During the tenure of the Aragon race, various unsuccessful attempts were made by the House of Anjou to recover their lost sovereignty; and the country, especially near the coast, was repeatedly ravaged by the Turks (1480). In fact, after the death of Alfonso, the first ruler of the Aragon dynasty, the country groaned under a load of misery. Wars, defensive and offensive, were incessant, the country was impoverished, and a conspiracy of the nobles to remedy the condition of affairs was productive of most lamentable results, both to the conspirators themselves, and to the other influential Neapolitan families. In 1495, Charles VIII. invaded N., and though he was compelled to withdraw in the same year, his successor, Louis XII., with the treacherous assistance of Ferdinand (the Catholic) of Spain, succeeded in conquering the country 1501. Two years afterward, the Spaniards under Gonsalvo di Cordova (q.v.) drove out the French, and the country from this time became a province of Spain. Sicily had previously (1479) been annexed to the same kingdom. During the two centuries of Spanish rule in N., the parliaments which had existed from the time of the Normans fell into desuetude, the exercise of supreme authority devolved on viceroys, and to their ignorance, rapacity, and oppressive administration may be ascribed the unexampled misery and abasement of this period. In the words of Sismondi, 'no tax was imposed save with the apparent object of crushing commerce or destroying agriculture, and the viceregal palace and the tribunals of justice became public offices in which the highest dignities and most sacred interests of the state were openly bartered to the wealthiest bidder.' During the Spanish rule, a formidable rebellion took place 1647, headed first by Masaniello (q.v.), afterward by Henry V., Duke of Guise; the whole population of the province renounced their allegiance to their Spanish sovereigns, but the arrival of a new viceroy, who was equal to the occasion, resulted in the capture of the Duke of Guise and the resubjugation of the country. At length, during the war of the *Spanish Succession* (q.v.), N. was wrested from Spain by Austria 1707, and Sicily in the following year; but while N. was secured to Austria by the treaties of Utrecht (1713) and Rastadt (1714) Sicily was transferred to Savoy by the former treaty. In 1720, however, both Sicilies were reunited under the Austrian rule, and in 1735 were given to Don Carlos, third son of Philip V. of Spain, who ascended the throne as Charles I., and founded the Bourbon dynasty. His reign was marked by equity and moderation; great reforms were effected in the administration of public affairs; science and literature were encouraged, and splendid works of public utility were erected throughout the kingdom. It was during his reign that Pompeii and Herculaneum were discovered. His

successor, Ferdinand IV., followed in the course of legislative reform; but on the proclamation of the French Republic (1789), his states were invaded by a French army, and the kingdom of N. was erected into the Parthenopean Republic (1799). Ferdinand retired with his court to Sicily, and for a brief period enjoyed the restoration of his sovereign rights in N.; but a second invasion by Napoleon (1806) ended in his proclamation of his brother, Joseph Bonaparte, as king of N.; and when the latter assumed the Spanish crown 1808, that of N. was awarded to Joachim Murat, brother-in-law of Napoleon. On the defeat and execution of Murat 1815, the Bourbon monarch, Ferdinand IV., was restored. The liberal insurrectionary movements in N. 1821 and 30 were the forerunners of the revolution of 1848; and in each case the party of progress was combated by the respective kings with ruthless severity, and perfidious concessions, to be cancelled and avenged with sanguinary fury when the disarmed and credulous patriots were at the mercy of the sovereigns. For the ultimate overthrow of the Bourbon dynasty in the kingdom of N., and its subsequent annexation to the kingdom of Italy under King Victor Emmanuel, see GARIBALDI: also FERDINAND II.: ITALY. For the history of Sicily previous to its annexation to and during its various separations from N., see SICILY.

NA'PLES (Ital. *Napoli*, anc. *Neapolis*): largest city of Italy, cap. of a province; formerly cap. of the kingdom of the Two Sicilies; built partly at the base, partly on the slopes of two crescent-shaped acclivities on the famous Bay of N. Pop. (1881) 463,172; of commune, 494,314. The wonderful beauty of the site and of the surrounding prospect, the delicious softness of the climate, and the clear atmosphere, make N. famed among the cities of the world. It is one of the chief centres of commerce and industry of Italy, and one of the principal stations of Mediterranean steam-navigation.

The public buildings of N. are numerous and grand, but are devoid of architectural symmetry in consequence of the antiquity of their origin and the irregularity of their site. Many of the old streets are paved with lava, and inconveniently narrow, with houses of great height. The modern streets, however, are spacious and splendid. The city is divided into the Old and the New Town, or the East and West Crescents, by a lesser range of heights —viz., the Capodemonte, the St. Elmo, and the Pizzofalcone, terminating in the rocky promontory called the Castel dell' Ovo. In 1868, a land-slip destroyed a number of houses at the foot of Pizzofalcone. The eastern division of N. is the most ancient and the most densely peopled; it contains the principal public structures, and is intersected by the splendid Via or Street di Toledo. The western, or modern section, contains the famous Riviera di Chiaja, or the Quay, a fine road running along the bay in a curved course of three miles, flanked on the right by a row of palaces, and bordered on the left by the beautiful pleasure-grounds of the Villa Reale, which

lie between it and the sea, and of which the natural beauty is heightened by the interspersion of temples, fountains, and statuary groups amidst the acacia, myrtle, and orange groves. The public squares, or *larghi*, of N. are adorned with fountains and obelisks; and within the precincts of the city, are several highly-prized springs both of fresh and of mineral waters. The fortified castles are numerous. Among the principal are the Castel Nuovo, called the Bastile of Naples, somewhat similar to the Tower of London, and adorned with a fine triumphal arch, erected in honor of Alfonso of Aragon; the Castel dell' Ovo, so called from its oval or egg shape, standing on a promontory, and connected by a bridge with the mainland; the Castel Sant' Elmo, commanding a magnificent view from its ramparts, and formerly of immense strength; and the dismantled Castel del Carmine. The Rom. Cath. churches and chapels number more than 300, and many are rich in architectural and archælogical interest, though generally they are notable more for interior decoration than for architectural excellence. The cathedral dedicated to St. Gennaro (Januarius; q.v.) contains the celebrated phials in which the liquefaction of St. Gennaro's blood is alleged to take place on two annual festivals; it contains also the tombs of Charles of Anjou and of Pope Innocent IV., besides numerous fine paintings and statues. The educational institutions of N. comprise famous schools of surgery, law, and general science. A magnificent aquarium has been opened since 1871, with a zoological laboratory in which many distinguished foreign naturalists are at work. The philanthropical establishments are on an immense scale, and are richly endowed. There are several theatres in the city, of which that of *San Carlo* (devoted to the Opera) is one of the largest and most celebrated in Italy; but the characteristic theatre of N. is the *Teatro di San Carlino*, headquarters of *Pulcinella* ('the Italian *Punch*'). There are four grand public libraries; and in the Museo Borbonico, N. possesses an unrivalled collection of art, comprising frescoes, paintings, mosaics, sculptures, bronzes, antiquities, and the renowned collection of precious objects excavated from Herculaneum and Pompeii.

The environs of N., apart from their extreme beauty of scenery, are highly interesting. The locality which contains the tomb of Virgil, the disinterred towns of Herculaneum and Pompeii, Vesuvius (from an eruption of which N. suffered 1872), and the Roman remains, must possess inexhaustible interest for scientific, antiquarian, and classical investigators. The modern villas of N. are splendid and luxurious. One of the most striking features of N. is its unique population and the universal publicity in which life is passed. The inhabitants are ever swarming in the thoroughfares, where an incessant throng of vendors, purchasers, and idlers intermingle with asses, mules, hand-carts, and conveyances, dazzling the eye with their brilliant variety of costume, and the pantomimic expressiveness of their frantic ges-

tures and attitudes; while the ear is stunned by the shrill conflicting cries of the ambulatory vendors of every conceivable commodity, by the piercing notes of the improvisatore's song, and the uproarious hilarity, and high-pitched patois of the countless masses, whose sole abode appears to strangers to be the thronged public squares and streets. The popular language of N., a corrupt dialect of Italian and Spanish, is in prevalent use among all classes of society; it lends itself especially to the satirical and facetious squibs and compositions in which the Neapolitans excel. The popular Neapolitan songs in the native patois are exquisitely naïve and expressive in sentiment, and are set to fascinating melodies (see LAZZARONI). In 1884 a French company finished a water system which brings daily 100,000 cubic metres of water a distance of 70 kilometres. Dr. Dohrn's zoological station here has become famous.

The name Naples (Gr. *Neapolis*, new city) had reference to an older town in the neighborhood, called originally Parthenope, and, after the foundation of the new town, Palæpolis (old town), which was probably on the ridge called Posilipo, that separates the Bay of Pozzuoli or Baiæ from that of Naples. Both towns were Greek settlements, apparently colonies from the neighboring Cumæ, joined by immigrants direct from Greece. B.C., 327 Palæpolis was besieged and taken by the Romans, and thenceforth disappears from history; Neapolis submitted without resistance, and became a favored and faithful ally, or rather provincial city of Rome. It long, however, retained its purely Greek character and institutions; and there is evidence that the Greek language continued to be used, even in public documents, as late as the 2d c. of the Christian era. N. was a flourishing and populous city during the Roman empire; and, notwithstanding the vicissitudes of the Gothic conquest of Italy, and the reconquests by the Byzantine emperors, it continued to be one of the most important and opulent places in Italy. About the 8th c., it threw off allegiance to the Byzantine emperors, remained independent till it fell into the hands of the Normans 1140, and became the cap. of the kingdom of Naples. Its history in modern times is scarcely separable from the history of Italy (q.v.): see also NAPLES (Province).

NA'PLES, BAY OF: indentation of the Mediterranean Sea on the s.w. coast of Italy, opposite the city of Naples; 20 m. wide from Cape Miseno on the n.w. to Cape Campanella on the s.e., and from this line extends inland about ten m. The scenery is very beautiful. On the shores are many towns and villages; the prospect is bounded e. by Mt. Vesuvius, and on the outskirts of the bay are the islands of Ischia and Capri.

NAPLES YELLOW, n. *nā'plz yĕl'lō* [*Naples*, in Italy, and Eng. *yellow*]: pigment of rich, opaque, golden hue, used by artists. It consists of antimoniate of lead, and is obtained by the direct combination of antimonic acid and oxide of lead under the influence of heat.

NAPOLEON, n. *na-pō'le-on* [after *Napoleon* I.]: French gold coin of 20 francs, about 16 shillings sterling = $3.86.

NAPOLEON I., *na-pō'le-on*, F. *nâ-pō-lā-ōng'* (NAPOLEON BONAPARTE, *bō'na-pârt*, It. *bō-nâ-pâr'tā*), Emperor of the French: 1769, Aug. 15—1821, May 5 (first consul in the Republic 1799–1804, emperor 1804–14); b. Ajaccio, in the island of Corsica. (For an account of the family to which he belonged, see BONAPARTE, FAMILY OF.) At the age of ten, he entered the Military School at Brienne, as a king's pensioner. Here he remained five years and a half, showing great aptitude and predilection for mathematics, history, and geography, and indifference to merely verbal and literary studies. His manner was sombre and taciturn, but as Bourrienne (who was his schoolfellow) says, this arose chiefly from the circumstance that he was a foreigner, poor and unaccustomed to the use of French, which he learned first at Brienne. 1784, Oct., he proceeded to the Military School to complete his studies for the army, and in less than a year obtained his commission as sub-lieut. in the artillery regt. *de la Fère*. When the Revolution broke out, N. was in garrison at Valence. He took the popular side, but in a quiet and undemonstrative way, for he did not love the boisterous enthusiasm of unmanageable mobs. When, 1792, the armed rabble of Paris poured out to the Tuileries on the famous June 20, N., who was then in the city, followed the 'despicable wretches' (as he called them), with his friend Bourrienne; he saw them force the poor king to stick the red cap on his head, and smile fatuously from the windows of his palace. 'It is all over henceforth with that man,' said the young officer, and returned to Paris graver and more thoughtful than Bourrienne had ever seen him. After the scenes of Aug. 10, he left for Corsica, where Gen. Paoli held chief command. The excesses of the Septembrists and Terrorists, however, induced Paoli to throw off his allegiance to the Convention, and to seek the assistance of England. N. was active but unsuccessful in his opposition to the designs of the general, and found it necessary, with his relatives, to flee from the island.

He now petitioned the Convention for employment, and was sent to assist in the reduction of Toulon, with the rank of lieut.col. of artillery. The city was captured (1793, Dec. 19) entirely through the strategic genius of N.; and in the following Feb. he was raised to the rank of brig.gen., and placed at the head of the artillery in the army of the south. Later in the year, he was sent to Genoa, to examine the fortifications of the city, and to discover the political disposition of the inhabitants. In the beginning of 1795, he was again in Paris seeking active employment, and thinking, from sheer ennui, of transferring his services to the sultan of Turkey. The Convention was now in great peril, on account of the mutinous spirit of the arrondissements of the capital, and, on the suggestion of Barras, Carnot, Tallien, and

others, N. was made commander of the troops provided for its defense. On the 13th Vendémiaire (1795, Oct. 4), the national guard, 30,000 strong, attempted to force its way into the Tuileries, where the convention was sitting, but was routed and dispersed by a terrible cannonade directed by the young artillery officer. N. was immediately appointed to the command of the army of the interior. About this time, he made the acquaintance of Josephine Beauharnais, whom he frequently met at the house of Madame Tallien. Captivated by her elegant manners and amiable disposition, he proposed marriage to the graceful widow, and was accepted. The wedding took place 1796, Mar. 9. A few days before, he had been appointed to the supreme command of the army of Italy, and he was obliged to leave his bride almost at the altar. On his arrival, he found the troops in a wretched condition. He had only 36,000 available men, and even these were half-starved, and only half-clothed, to oppose to an Austrian and Piedmontese force of 75,000. Yet he was not afraid to undertake the conquest of Upper Italy. Leaving Nice at the close of March, he won his first victory over the Austrians at Montenotte (April 11), which opened the Apennines for him; three days later, a second success at Millesimo separated the allied armies; and, finally, his victory at Mondovi (Apr. 22) compelled Sardinia to implore peace. He now hoped to crush utterly the Austrian army under Beaulieu, and at the battle of Lodi (May 10) nearly accomplished it. His opponent did not venture to defend the line of the Mincio, but hastily throwing a garrison into the city of Mantua, retreated into the Tyrol. N. immediately entered Milan, and took possession besides of all the principal cities of Lombardy. Now began in n. and central Italy that system of enormous and unscrupulous plunder which gives something of a barbaric character to the conquests of the French. The Directory gave orders that N. should levy contributions from all the states which he had gratuitously freed, and according to his own account, he sent to France not less than 50,000,000 francs. His officers and commissaries actually seized whatever they wished, provisions, horses, and all manner of stores; and because Pavia ventured to make some slight resistance to the shameful extortions of the republicans, N. gave it up to havoc for 24 hours! A body of savans (including Monge, Berthollet, and others) were dispatched to Italy to superintend the spoliation of its artistic treasures; and both then and in the subsequent Italian campaigns, pictures, statues, vases, and MSS. were carried off in great numbers, to gratify the vanity of the Parisian sight-seers. In this way, Lombardy, Parma, Modena, Bologna, and the States of the Church were savagely harried before the end of June—Pope Pius VI., in particular, being forced to submit to conditions of extreme rigor.

Meanwhile, Austria had resolved to make another effort for the recovery of Lombardy. About the close

of July, Marshal Wurmser advanced from Trent at the head of 60,000 men, and forced Napoleon to raise the siege of Mantua, but was himself defeated, with the loss of all his cannon, near Castiglione (1796, Aug. 5), and again at Bassano (Sep. 8); in consequence of which, he was driven to take refuge within the fortress of Mantua with 16,000 troops—the shattered remains of his 60,000. Austria, however, was not disheartened. A *third* army was dispatched in two divisions: 30,000 from Carinthia, under Marshal Alvinzi; and 20,000 from the Tyrol, under Gen. Davidowich. This was a terrible campaign for N.; his veterans were exhausted, his new supports had not arrived; he himself was despondent, while the Austrians were fresh and hopeful. At first, the latter were completely successful; but the great victory of Arcola, won by N. (1796, Nov. 17) after three days' fierce fighting, in which he lost nearly all his general officers, decided the fate of the campaign. His dispatches to the Directory, penned about this period, show how thoroughly he apprehended the state of parties in Italy, and also how utterly indifferent he was to any considerations beyond those that advanced the interests of France. 1797, Jan., a fourth campaign was commenced by Austria. At the head of 50,000 fresh troops, Alvinzi descended from the Tyrol, but was completely routed by N. at Rivoli, Jan. 14; and not long after, Wurmser was starved into surrender at Mantua. A *fifth* army was assembled on the Tagliamento, under the command of the archduke Charles: but his troops were mainly raw recruits, while those of N. were inured to war, and flushed with innumerable triumphs. In consequence, he was forced to retreat, which, however, he did slowly and in good order, hoping to surround his opponent in the interior of the country. N.'s design was to march on Vienna, and he actually penetrated as far as Judenburg, in Upper Styria, only eight days' march from the capital. The Austrian govt. at length was seized with alarm, and made overtures of peace; and finally, 1797, Oct. 17, the famous treaty of Campo-formio was signed, by which Austria ceded the Netherlands, Lombardy, and some smaller territories to France; while obtaining in return, through disgraceful treachery on the part of the victor, possession of the province of Venice. It is generally said that N.'s military genius was never more brilliantly displayed than in these early Italian campaigns. In ingenuity of plan, celerity of movement, audacity of assault, he far outshines all his adversaries; it is, moreover, but just to him to state further, that he made desperate efforts to stop the excesses of the most scoundrelly commissariat in Europe; and that while in the main he showed no hesitation in carrying out the brigand-like orders of the Directory, he does not appear to have appropriated a single penny to himself. It was power, not gold, that he cared for.

1797, Dec., N. returned to Paris, where he was received with the utmost enthusiasm. At this time, there

was much talk, and probably some vague design, on the part of the Directory, of invading England, and N. was appointed commander-in-chief of the invading army. It has been thought, however, that this was merely a feint to mask the real design of the Directory, viz., the invasion of Egypt, as perhaps a preliminary step to the conquest of British India. Be that as it may, an expedition against Egypt was resolved on by the Directory; and 1798, May 19, N. sailed from Toulon, with a fleet carrying 30,000 soldiers, and a body of savans to investigate the antiquities of the country. He reached Alexandria June 29. At this moment, France was at peace with Turkey; the invasion of Egypt, a Turkish dependency, was therefore utterly unjustifiable, and reminds us not of European warfare, but rather of the irruption of a horde of barbaric Tartars. N. having landed his troops, captured Alexandria, and marched on Cairo. The Mamalukes prepared resistance; but July 21, at the battle of the Pyramids, they were completely defeated, and the French became, in a surface-way, masters of Egypt. N. then entered the capital, and immediately began to reorganize the civil and military administration of the country—for he took a great, but also an ostentatious pleasure in this sort of work. Meanwhile, Aug. 2, Nelson had utterly destroyed the French fleet in Aboukir Bay, and so cut off N. from communication with Europe. A month later, the sultan declared war against him. This was followed by disturbances in Cairo, which were suppressed only by horrible massacres. It was obviously necessary that N. should go somewhere else. He resolved to meet the Turkish forces assembling in Syria; and 1799, Feb., crossed the desert at the head of 10,000 men, stormed Jaffa Mar. 7, after a heroic resistance on the part of the Turks; marched n. by the coast, and reached Acre on the 17th. Here his career of victory was stopped. All his efforts to capture Acre were foiled through the desperate and obstinate valor of old Djezzar Pasha (q.v.), assisted by Sir Sidney Smith, with a small body of English sailors and marines. May 21, he commenced his retreat to Egypt, leaving the whole country on fire behind him, and re-entered Cairo June 14. During his absence the savans made their valuable researches among the monuments of Upper Egypt. About the middle of July, the sultan landed a force of 18,000 men at Aboukir, who were attacked by N. on the 25th, and routed with immense slaughter. But the position of the victor was far from comfortable, and he therefore resolved to return to France—especially as news had come to him of disasters in Italy and confusions in Paris. Aug. 23, he sailed from Alexandria, leaving his army behind him under the command of Kleber; and after narrowly escaping capture by the English fleet, landed near Frejus, 1799, Oct. 9. He hastened to Paris, soon mastered the state of affairs, threw himself into the party of Sieyès, and overthrew the Directory (q.v.) on the famous 18th Brumaire. A new constitution was drawn up, chiefly

by Sieyès, under which N. became First Consul, with the power of appointing to all public offices, of proposing all public measures in peace or war, and the entire command of all administrative affairs civil and military. In a word, he was ruler of France; and though far from satisfied with the clumsy machinery of Sieyès's plan he could afford to wait the future. In 1800, about the end of January, he took up his residence in the Tuileries. The country was tired of revolutions, discords, and confusions; it was proud of its young leader, who seemed inspired but not enslaved by the ideas of his age, and who knew how to enforce obedience, as well to panegyrize principles. It therefore regarded his assumption of sovereign power with positive satisfaction. N. displayed extraordinary vigor as an administrator, recruited the national treasury by various sagacious expedients, repealed the more violent laws passed during the Revolution, such as punishment for matters of opinion, reopened the churches, and terminated by policy the Vendean struggle. But he knew well that his genius was essentially military, and that his most dazzling and effective triumphs were those won on the battle-field. France was still at war with Austria, and he resolved to renew the glories of his first Italian campaigns. Leaving Moreau in command of the army of the Rhine, he assembled, with wonderful rapidity and secrecy, an army of 36,000 men on the shores of the Lake of Geneva, and 1800, May 13, began his magnificent and daring march across the Alps. Almost before the Austrian general, Melas, was aware, N. had entered Milan (June 2). Twelve days afterward, was fought the fiercely contested yet decisive battle of Marengo, which compelled the Austrians to resign Piedmont with all its fortresses, and (for the second time) Lombardy to the French. Later in the year, hostilities were recommenced; but the Austrians, beaten by Moreau in Germany (at Hohenlinden, etc.), and by N. in Italy, were at last forced to make peace; and 1801, Feb. 9, signed the treaty of Lunéville, based mainly on that of Campo-formio. In the course of the same year, France and England also made peace, but the treaty (known as that of Amiens) was not definitively signed till 1802, Mar. 27. Not less important for the consolidation of affairs in France was the famous *Concordat* (q.v.) between N. and Pope Pius VII., also concluded 1801. In 1802, Jan., N. became President of the Cisalpine Republic; and Aug. 2, was declared Consul for life by a decree of the French senate.

Meanwhile, N. was busy superintending the drawing up of a code of civil laws for France. He assembled the first lawyers in the nation, under the presidency of Cambacérès, and frequently took part in their deliberations; the results of their labors were the *Code Civil des Français*, *Code de Procédure*, *Code Penal*, and *Code d'Instruction Criminelle*, besides commercial and military codes, all of which often are loosely grouped under the name *Code Napoléon*. The first of these is an admirable pro-

duction, and is in force to the present day. Considerable attention was given also to such branches of education as were likely to promote efficiency in the public service. Mathematics, physical science in all its departments, engineering, etc., were as vigorously encouraged as philosophy, ethics, and political speculation were discouraged. But the best proof that N. wanted not an educated people, but only active and expert tools and agents, was the indifference that he manifested to primary and elementary education. In a population of 32,000,000, the number of pupils under ten years is given by Fourcroy at only 75,000! The internal government was the acme of despotic centralization. N. appointed all prefects of departments, and all mayors of cities, so that not a vestige of provincial or municipal freedom remained. He ruled France as he ruled the army of France, and was already an emperor in almost everything but the name.

Peace between France and England did not last long. N.'s policy in Italy irritated the British govt., and as remonstrances were ineffectual, war was declared against France, 1803, May 18. The English fleet scoured the seas, paralyzing the commerce of France; while N. threatened to invade England, and assembled a large army at Boulogne. So utterly did he misconceive the character and condition of Englishmen, that he felt sure (according to his own statement) that he should be welcomed as a liberator by the people! While these warlike preparations were going on, occurred the dangerous conspiracy of the Chouan chief, George Cadoudal (q.v.), Pichegru (q.v.), Moreau (q.v.), and others. Its discovery (1804, Feb.) alarmed N. excessively, and led to what has been considered one of the blackest deeds in his career—the murder of the Duke d'Enghien (q.v.) Mar. 20 following. He now appears to have felt it necessary to assume the title Emperor. France, he alleged, wanted an empire as a symbol of permanent security. An appeal was made to the nation. More than 3,000,000 votes were in favor of the proposed change in the form of government; only 3,000 or 4,000 against it. But where there is no municipal freedom, one does not know what value to put on votes. May 18, N. assumed at St. Cloud the title Emperor, and was crowned by, or rather in the presence of, the pope (for N. rudely crowned himself) 1804, Dec. 2. In the following summer (1805, May 26), in the great cathedral of Milan, he was crowned also King of Italy; and Eugène Beauharnais, his stepson, was appointed to the office of viceroy.

This policy of aggrandizement, which set at naught the conditions of the treaty of Lunéville, alarmed the other nations of Europe, especially Austria, which saw her Italian possessions seriously threatened. In 1805 a coalition was formed between England, Russia, Austria, and Sweden, mainly through the persevering policy of England; and war again broke out in September. N. acted with amazing celerity. Concentrating his widely-

scattered forces at Mainz, he marched at once across Bavaria, compelled Gen. Mack to capitulate at Ulm with 20,000 men (Oct. 17); and entered the capital of Austria Nov. 13. France was electrified; the rest of Europe was thunder-struck. But a more glorious triumph was yet to come. The Russian army was already in Moravia, under the immediate command of Emperor Alexander I., and was there being joined by the scattered Austrian troops. N. did not lose a moment. Hurrying north, he gave battle to the allies at Austerlitz, Dec. 2. The contest was tremendous; but the victory was complete. N.'s opponents were utterly crushed; and next day the Austrian emperor sought an interview, and sued for peace. A treaty was signed at Presburg, 1805, Dec. 26, by which Austria ceded to France all her Italian and Adriatic provinces; other changes effected by it were, the dissolution of the old German empire, and the formation of the *Confederation of the Rhine* (q.v.).

1806, Feb., a French army conquered Naples, and the crown was conferred by N. on his brother Joseph; in the following June, another brother, Louis, was made king of Holland. Prussia, now when it was too late, assumed a hostile attitude. She had hung off partly through fear and partly through selfishness, from the great anti-French coalition of the previous year, and now, when circumstances were almost hopelessly adverse, she madly rushed against her colossal enemy. Austria, with more magnanimity than prudence, lent her help, but the star of N. was still in the ascendant. The battle of Jena (Oct. 14) absolutely annihilated the power of Prussia; five days later, N. entered Berlin, whence he issued (Nov. 21) his celebrated 'Decrees' against British commerce, hoping to ruin her by shutting out her ships from every harbor in Europe. His expectations, it need hardly be said, were disappointed. His policy nearly ruined the commerce of his own and other countries, but it only increased the prosperity of England. Her fleets and cruisers swept the seas; nothing could be got from the colonies save through her, and the merchants of the continent were obliged—in order to supply their customers as before—to let her carry on a vast contraband traffic. See ORDERS IN COUNCIL.

After the capture of Berlin, N. proceeded northward to encounter the Russians, who were advancing to the help of Prussia. On his way, he summoned Poland to rise, but with only partial success. At Pultusk (1806, Dec. 28), and at Eylau (1807, Feb 8), the French were beaten and driven back on the line of the Vistula; but after some months, he received heavy reinforcements, and June 13, fought and won the great battle of Friedland, which led to the treaty of Tilsit, signed July 7. By a secret article of this treaty, Russia promised to close her ports to British vessels. It is noticeable that, as the military triumphs of N. increased, the civil and political liberties of his subjects diminished. Consequent on the treaty of Tilsit, a decree of the imperial

senate abolished the tribunate—the only political body in France that preserved the semblance of national self-government. In Aug., N. created his brother Jerome sovereign of Westphalia—having patched up a kingdom for him in his usual unscrupulous way—and soon afterward entered on a war with Portugal—the beginning of the great Peninsular War. The occasion of the war was the refusal of the Prince-regent of Portugal to carry out the Berlin decree in regard to British shipping. 1808, Mar., occurred that extraordinary instance of trepanning at Bayonne, by which the whole royal family of Spain fell into the hands of N.; and in the following July, his 'dearly beloved brother' Joseph was ordered to exchange the throne of Naples for the 'crowns of Spain and the Indies.' His successor was the 'handsome swordsman' (*beau sabreur*), Joachim Murat. Spain rose in insurrection, and an English force, under Sir John Moore, was dispatched to its assistance. N. invaded the country about the close of Oct., defeated the Spanish forces, and captured Madrid (Dec. 4). But his presence was urgently needed elsewhere, and he was forced to let Soult and other generals conduct the war in the Peninsula. Austria, again irritated and alarmed at his aggressive policy, especially in Italy (where he had seized Tuscany and the States of the Church), once more prepared for war, which broke out in the spring of 1809. Her army of Germany, commanded by the archduke Charles, was in splendid condition; but still fortune was adverse. N. hurried into Bavaria, routed the archduke at Eckmühl (1809, Apr. 22), compelled him to retreat into Bohemia; and May 12, entered Vienna the second time. But the struggle was not over. The archduke rallied his scattered forces, worsted N. in the terrible conflicts of Aspern and Essling (May 21, 22), and drove him to take refuge for a time on an island of the Danube. The battle of Wagram (July 6), however, once more prostrated, or at least intimidated Austria; and 1809, Oct. 14, she signed the peace of Schönbrunn.

N. appears to have then come to the conclusion, that he could put a stop to the hostile machinations of the old legitimate dynasties only by intermarrying with some one of them. Besides, his wife Josephine had no children—and he was ambitious of perpetuating his power in his family. With that callousness to everything except his own interests, which is a prominent feature of his character, he immediately proceeded to divorce her. The act of divorcement was solemnly registered 1809, Dec. 16. Less than three months afterward, he married Maria Louisa, Archduchess of Austria. He was now at the zenith of his power, and so, according to the old Greek belief, Nemesis was on his track. Some British writers attribute his ruin to that outrage on civilization—the Berlin Decrees; and, indeed, if these were not its cause they seem at least to have supplied its occasion. Russia found it impossible to carry out

the Berlin Decrees, without permanent injury to her great landowners; Sweden and other countries were in a similar predicament. This led to evasions of the decree, and these, again, involved Russia particularly in further complications, until finally, 1812, May, N. declared war against her; and in spite of the advice of his most prudent counselors, resolved to invade the country. The dreadful history of the Russian campaign is familiar. N., wringing contingents from all his allies—Germans, Austrians, Italians, Poles, and Swiss—concentrated between the Vistula and the Niemen an army of half a million of men. The vast horde crossed the latter river (June 24, 25) in three divisions, captured Wilna (June 28), and ravaged Lithuania. The Russian generals retreated before the invading host, deliberately wasting the country, and carrying off the supplies, but avoiding, as far as possible, all engagements—their design being to surround N. in the heart of the country, and by the help of famine and the rigors of a northern winter, to annihilate him in his hour of weakness. N. followed up the retreating foe with reckless resolution. He risked everything on the chance of striking some overwhelming blow. The horrors of his march—in Lithuania alone, 100,000 dropped off (dead, sick, or captured by the swarms of Cossacks that hung upon his flanks)—are too familiar to require description. When he reached Smolensk (Aug. 16), the Russians had just left it—on fire! About three weeks later, he made up on the enemy at Borodino, where an obstinate and bloody battle was fought (Sep. 7). The French remained in possession of the field, but of nothing else. A week later, N. entered Moscow, hoping to find rest for a time in the ancient metropolis of the country. But the city was deserted by its inhabitants; and Sep. 16, a fire broke out, which raged till the 19th, and left Moscow a heap of ruins. After five weeks' stay, N. was obliged to commence his retreat (Oct. 19). His army was reduced to 120,000 men. The winter set in much earlier than usual, and he had to return through the very districts which had been wasted on his advance. When he left Smolensk (Nov. 14), he had only 40,000 fighting-men; when he crossed the Beresina (Nov. 26, 27), he had not more than 25,000. With the excuse—which was in itself no doubt true—that his presence was urgently needed in France, he now abandoned the miserable remains of his army; and, Dec. 5, leaving Murat in command, set out in a sledge for Paris, where he arrived on the 18th. He instantly set about a fresh conscription; and in the spring of 1813, marched into Germany at the head of 350,000 men; but the Russian campaign had broken the spell of terror which his name had till then exercised. The spirit of all Europe was thoroughly roused. A conviction was—somewhat unconsciously—seizing every mind (at the close of the campaign of 1814, even France shared it), that the world had had 'enough of Bonaparte' (*assez de Bonaparte*). Prussia, in particular, was burning to wipe out the disgrace of Jena, and

all the bitter humiliations to which she had been subsequently subjected. The victories of the British in Spain, the fame of which was spreading all over the continent, proved to her also that French soldiers *could* be beaten, not once or twice only, but through whole campaigns. An alliance was formed between the king of Prussia and Emperor Alexander. At first, Austria remained neutral, but afterward joined the coalition. N.'s military genius, it has been often remarked, never showed to greater advantage than in this and the next campaign, which cost him his crown and his liberty. He was for some months successful in winning battles—at Lützen (May 2), Bautzen (May 21), and Dresden (Aug. 24, 25, 27); but the invincible temper of the allies, who knew that he was playing his last card, made these victories almost fruitless. They were convinced that one grand defeat would neutralize all his triumphs. This was inflicted, after several minor defeats, at Leipzig—the great *Battle of Nations*, as it has been called (Oct. 16, 18, 19). The result justified their expectations—N. was hopelessly ruined! He commenced his retreat toward France, followed by the allies. When he recrossed the Rhine, he had only 70,000 or 80,000 men left out of his 350,000. All the French garrisons in the Prussian towns were compelled to surrender. N. appeared at Paris Nov. 9; and though great discontent prevailed in the country, and a spirit of opposition showed itself even in the legislative body, the senate decreed, at his bidding, another conscription of 300,000 men, with which N. began, 1814, Jan., to attempt to drive the allies out of France. His extraordinary skill and energy served only to mark his desperation. Mar. 30, the allied forces captured, after a severe engagement, the fortifications of Paris; next day, Emperor Alexander and the king of Prussia entered the city *amid the shouts of the populace;* Apr. 4 N. abdicated at Fontainebleau. He was allowed to retain the title Emperor, with the sovereignty of the island of Elba, and an income of 6,000,000 francs, to be paid by the French govt. A British ship conveyed him to Elba, where he arrived May 4.

After ten months, mostly spent in intrigues, N. made his escape from the island, landed near Frejus 1815, Mar. 1, and appealed again to France. The army went over to him in a body, and several of his marshals, but the majority remained faithful to Louis XVIII. Mar. 20 he reached Paris, reassumed the supreme power, promised a liberal constitution, and prepared once more to try the fortune of battle with the allies. At the head of 125,000 men, he marched (June 15) toward Charleroi, on the Flemish frontier, where the English and Prussian forces were assembling. The Duke of Wellington, who, the year before, had completed the deliverance of Spain, was appointed by the Congress of Vienna commander-in-chief of the armies of the Netherlands. The campaign lasted only a few days. June 16, N. defeated the Prussians under Marshal Blücher, at Ligny, which com-

pelled Wellington to fall back on Waterloo, where, on the 18th, was fought the most memorable and decisive battle of modern times. It resulted in the utter and irretrievable ruin of Napoleon. The despot, who knew what awaited him—for France had *not* recalled him from Elba; he came at the desire of a faction, whose interests were identical with his—returned to Paris. The house of representatives insisted that he should abdicate. He did so 1815, June 22, in favor of his son, Napoleon II.; they further demanded that he should leave the country for ever, and he retired to Rochefort, with the design of embarking for the United States. July 7, the allies again entered Paris, and refused to acknowlege the acts of the French provisional government. N., who saw that he could not escape either by sea or land, voluntarily surrendered (July 15) to Capt. Maitland of the *Bellerophon*, claiming the protection of British laws! It was, however, resolved by the British govt. to confine him for life on the islet of St. Helena, a lonely rock in the Southern Atlantic, 1,000 m. from the coast of Africa. He was conveyed thither by Admiral Cockburn, and landed at St. Helena, 1815, Oct. 16. The remainder of his life was politically insignificant. His chronic quarrels with his governor—or *jailer*, as the French prefer it—Sir Hudson Lowe; his conversations with friends and visitors about his past career; his deliberate attempts to falsify history in his writings, are familiar. After more than a year of illness he died of an ulcer in the stomach, and was buried with military honors. In 1840, his remains were removed to France, and deposited in the *Hôtel des Invalides*. N., in his earlier and later public life took the attitude of a friend and liberator of the common people. In his great middle career, he revealed himself as a despiser of common men and an oppressor of nations—a ruthless cynical believer in a government whose end was military glory, and whose basis was military force.

NAPO'LEON II.: son of Napoleon Bonaparte: see REICHSTADT, DUKE OF.

NAPO'LEON III., Emperor of the French: nephew of Napoleon Bonaparte: see LOUIS NAPOLEON.

NAPO'LEON, or in full, NAPOLEON JOSEPH CHARLES PAUL BONAPARTE, Prince: born Trieste 1822; son of Jerome, King of Westphalia; and nephew of Napoleon Bonaparte. When the insurrection broke out in the Romagna 1831, he was in Rome with his grandmother, Madame Letitia Bonaparte, but was forced to leave the city for Florence on account of his cousins (see LOUIS NAPOLEON) being implicated in the revolutionary disturbances. He was educated at a boarding-school in Geneva, and at the Milit. School of Ludwigsburg, in Würtemberg, completing his studies 1840, after which he travelled five years in Germany, England, and Spain. In 1845, he obtained permission to visit Paris under the name of Comte de Montfort; but his relations with the

democratic party, and his advanced political opinions, rendered him suspected by the government, who ordered him to quit the country. He, however, again made his appearance on the eve of the revolution of 1848, Feb. After the fall of Louis-Philippe, he offered his services to the provisional govt., and was elected by the Corsicans a member of the constituent assembly, where he voted with the moderate republicans. He held for a short time, 1849, the office of minister-plenipotentiary at Madrid. After the *coup d'état*, he withdrew into private life; but on the restoration of the empire he reappeared to share in the honors that now fell thickly on his family. By a decree of the senate, 1853, Dec. 23, he was pronounced a French prince, with the right to a place in the senate and the council of state; at the same time, he received the insignia of the grand cross of the Legion of Honor, and—though he had not served—the rank of gen. of division. In the Crimean war, he commanded a division of infantry-reserves at the battles of Alma and Inkermann, but soon returned to France, on the plea of ill-health. N. was pres. of the imperial commission of the Paris Exhibition 1855. In 1858 he was appointed head of the ministry for Algiers and the colonies, but held the office for only a short time. During the same year he married Princess Clotilde, daughter of Victor Emmanuel, and in the Italian war of 1859, commanded the French army of reserve in s. Italy, but was not engaged in actual hostility. In 1861 he made a speech in the senate, reflecting on the Orleans family, for which he was challenged by the Duc d'Aumale. The challenge was *not* accepted, much to the disgust of the French army. N. was pres. of the French commission at the London Exhibition of 1862. In 1865 he resigned several public appointments, owing to a reprimand from the emperor about a speech. Afterward, however, he was intrusted with many delicate missions, and urged the emperor to a liberal policy. In 1876 he was returned to the French assembly for Corsica; but in the election of 1877 was rejected. The death of the Prince Imperial in Zululand 1879 gave N. and his sons a more prominent position in the Bonaparte family. The issuing by N. of a proclamation in the spring of 1883 led to violent excitement in France, prolonged discussions in the chamber, and a ministerial crisis; the prince was arrested, but soon set at liberty.

NAPOLEO'NA: see BELVISIA.

NAPOLEON-VENDÉE, *nâ-pō-lā-ōng′ vâng-dā′*, or BOURBON VENDÉE, *bôr-bōng′ vâng-dā′*, or LA ROCHE SUR YON, *lâ rosh sür yōng:* town of France, cap. of the dept. of Vendée, pleasantly situated on a hill on the right bank of the Yon, 37 m. s. from Nantes. The town has no manufactures, and little trade, but is important chiefly as the seat of departmental administration. The town contained only 800 inhabitants when Napoleon I. selected it for the cap. of the dept., granted great sums for its improvemont, and called it *Napoleon-Vendée*, changed to *Bourbon-Vendée* at the restoration of the Bourbons, the former name coming again into use under Napoleon III. It is now known as *La Roche sur Yon*. Pop. 10,000.

NA′POLI DI ROMANI′A: see NAUPLIA.

NAR, a. *nâr:* OE. for NEARER: see NEAR.

NARA, *nâ′râ:* most ancient of the capitals of Japan. It is about 20 m. e. of Ozaka, and is noted for its picturesque surroundings as well as for its former glory. For about 80 years, from 708, it was the principal seat of the mikados and the centre of art and literature of the empire. During the high tide of its prosperity it had a population of over 200,000. Among its objects of interest are the colossal statue of Buddha, 53 ft. in height, which on the ninth attempt was successfully cast by a Corean artist; and a great bell, cast 732, which is 13½ ft. high, 9 ft. across, 8 inches thick, and weighs 36 tons. There are also several ancient buildings for religious purposes. In the vicinity of the town is Mikasa Yama, meaning 'hill of the three hats,' celebrated in Japanese poetry and represented in various forms of artistic work. Extensive manufactures of fans, silk, lacquer, and porcelain, are still maintained; though the pop. has diminished to about 21,500.

NARAKA, *nâr'a-ka:* the hell of the Hindus. Manu (q.v.) enumerates 21 hells or divisions of N., and gives a general description of the tortures which await the impious there. The Purân'as, however, are more systematic. The Vishn'u-Purân'a names 28 such hells. Thus, a man who bears false witness is condemned to the hell *Raurava* (i.e., Fearful); the murderer of a Brâhman, stealer of gold, or drinker of wine, goes to the hell *S'ûkara* (i.e., Swine), etc. Besides, we are told of 'hundreds and thousands of others.'

NARBONNE, *nâr-bŏn':* town in s. France, the dept. of Aude, 55 m. s.w. of Montpellier, on a branch (La Robine) of the Canal du Midi. It is the *Narbo Martius* of the Romans; but there is reason to believe that it was well known to the Greeks 500 years before the Christian era. It was colonized by the Romans B.C. 118, and probably got the designation Martius from Q. Marcius Rex, one of the consuls at the time. Situated only about 8 miles from the sea, on the direct road into Spain and into the basin of the Garonne, N. was in early times a place of great commercial prosperity. It was the second settlement of the Romans in South Gallia, and was considered by them an important acquisition, both for its strength and as the key to the road into Spain. Under Tiberius, it flourished greatly; the arts and sciences being cultivated with success, and its schools rivalling for a long time those of Rome. About A.D. 309, it became the capital of Gallia Narbonensis, and contained among other buildings a capitol, theatre, forum, aqueducts, triumphal arches, etc. It was taken 719 by the Saracens, who planted here a Moslem colony, and destroyed the churches. In 859 it fell to the arms of the Northmen. During the 11th and 12th c., it was a flourishing manufacturing city, but subsequently it fell into comparative decay, though still showing remains of its former splendor. A considerable number of architectural fragments—as capitals, marble slabs with inscriptions, friezes, etc.—have been found, and have been grouped into a collection of antiquities. The present very dirty town contains one imposing building, the Cathedral of St. Just, founded 1271, but still unfinished. The honey of N. is the best in France, both for color and flavor. There are some manufactures. Pop. (1876) 18,325; (1881) 25,635.

NARCEINE, n. *nâr'sĕ-ĭn*, or NARCEIA, n. *nâr-sē'yă* [L. *narcē;* Gr. *narkē*, torpor]: one of the vegeto-alkaline bases obtained from opium.

NARCIS'SUS: in ancient Greek fable, son of the river god Cephissus and of the nymph Liriope or Liriœssa of Thespiæ, in Bœotia. He was a youth of extraordinary beauty, of which he was excessively vain; and for this he was punished by Nemesis, by being made to fall in love with himself on seeing the reflection of his own face in a fountain. He died of this love-sickness; and on the place where he died, sprang up the flower which bears his name. The story of N. finely narrated by Ovid, is of comparatively late origin.

NARCISSUS, n. *nâr-sĭs'ŭs* [L. *narcissus;* Gr. *narkissos*, in *anc. myth.*, a beautiful youth, fabled to have been changed into the flower called by his name]: genus of plants of nat. order *Amaryllideæ*, having a perianth of six equal petal-like segments, and a bell-shaped corona of various magnitude. The species are natives of s. Europe, n. Africa, and temperate parts of Asia. Many are cultivated in gardens, for their beautiful and often fragrant flowers, which in general appear early in the season. Some are known by the names Daffodil (q.v.) and Jonquil (q.v.). The name N. is popularly restricted to those which have flat—not rush-like—leaves, and a short not bell-shaped corona. Of these, one of the best known is the Poet's N. (*N. poeticus*), with generally one-flowered scape, the flower white and fragrant, the corona with a deeply-colored border; others, with one or two flowers on the scape, are in common cultivation.—The POLYANTHUS NARCISSUS (*N. Tazetta*) has a number of flowers on the scape. It grows wild in stony places near the Mediterranean and eastward to China. Many varieties of it are in cultivation. It is grown not only in gardens and green-houses, but in water-glasses, like the hyacinth. It is very common in gardens in India, where it is highly esteemed as a flower. The narcissi in general are propagated either by seed, or by offset bulbs. They thrive best in a rich light soil.

Narcissus Poeticus.

NARCOSIS, n. *nâr-kō'sĭs* [Gr.—from *narkē*, numbness, torpor]: in *pathol.*, a state of benumbing stupor in which death may ultimately ensue from paralysis of the respiratory muscles; a typical instance is seen in the effects of opium.

NARCOTIC, a. *nâr-kŏt'ĭk*, or NARCOT'ICAL, a. *-ĭ-kăl* [Gr. *narkōtikos*, having the power of benumbing—from *narkē*, torpor: It. *narcotico;* F. *narcotique*]: having the power of producing drowsiness, sleep, or stupor. NARCOT'IC, n. a medicine which, in small doses, relieves pain and produces sleep. NARCOT'ICALLY, ad. *-lĭ*. NARCOTINE, n. *nâr'kō-tĭn*, see below. NARCOTISM, n. *nâr'kō-tĭzm*, effects of a narcotic; the condition of one affected by a narcotic.—*Narcotics* are remedies which, in moderate doses, lessen the action of the nervous system. Their full operation is sleep or coma, which, becoming profound and accompanied with paralysis, terminates in death. Opium is the type from which most descriptions of this

class of medicines have been drawn; but though most narcotics more or less resemble opium in their action, almost every one presents some peculiarity in the way in which it affects the system. These medicines are primarily stimulating, especially in small or moderate doses; but this stage of their action is comparatively short; and when the dose is large, the excitement is scarcely perceptible. Their power of inducing sleep has procured for them the names Hypnotics and Soporifics; while many of them are termed Anodynes, from their possessing the property of alleviating pain. Next to opium, Henbane, Indian Hemp, and Aconite may be regarded as the most important narcotics. It has been already mentioned that there are differences in the mode of operation of the different members of this class. 'Some dilate, while others contract the pupil; some appear to concentrate their sedative action more particularly upon the functions of the encephalon, others upon the contractile power of the alimentary and bronchial tubes, while a strict distinction is to be drawn between those which occasion constipation and those which do not; all these things being of great practical importance.' —Ballard and Garrod's *Elements of Materia Medica*, p. 13.

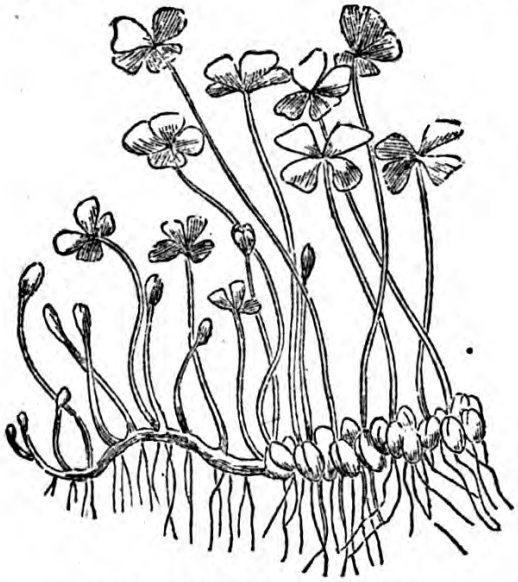
Narcotics are administered usually with the view either of inducing sleep or of alleviating pain or spasm. As, however, their action is much modified by a variety of circumstances—such as age, idiosyncrasy, and prolonged use—they should be administered with extreme caution; and as a general rule, only under competent advice. The various quack medicines for children known as *Carminatives*, *Soothing Syrups*, etc., contain some form of opium, and are a fertile cause of the great mortality in infancy, especially among the poorer classes. All the narcotics when taken in excess are poisonous.

NAR'COTINE ($C_{22}H_{23}NO_7$): one of the organic bases or alkaloids occurring in opium, in which it usually exists in the proportion of 6 or 8 per cent. It is nearly insoluble in water, but dissolves readily in alcohol, ether, and chloroform. Its ethereal solution, submitted to spontaneous evaporation, yields it crystallized in colorless acicular groups or in rhombic prisms. A mixture of concentrated sulphuric and nitric acids produces a blood-red color with N. and its compounds. N. possesses very slight alkaline properties; its salts do not readily crystallize, and are even more bitter than those of morphia, though the substance itself is almost tasteless. When first discovered (1803), it was supposed to be the stimulant principle of opium; but in reality it possesses very little activity. It has been prescribed in gradually increased doses up to a scruple, without the least injury. Its sulphate has been used in India as a substitute for quinine; and nearly 200 cases of intermittent and remittent fevers, treated by it with success, have been published by Dr. O'Shaughnessy.

NARD, n. *nârd* [L. *nardus;* Gr. *nardos*, nard: F. *nard*]: the shrub called the spikenard (q.v.), famed for its aromatic scent and medicinal qualities; an ointment prepared from the plant. NARDINE, a. *nâr'dĭn*, of or resembling nard. NARDOS'TACHYS: see SPIKENARD.

NARDO, *nâr'dō* (anc. *Neretum*): town of s. Italy, province of Lecce, 8 m. n.n.e. from Gallipoli. N. has manufactures of cotton goods and snuff, from cotton and tobacco grown in the neighborhood. The surrounding country abounds in olive plantations. Pop. about 8,500.

NARDOO, *nâr-dô'* (*Marsilea quadrifida*): plant of the acotyledonous nat. order *Marsileaceæ* (q.v.), the only plant of that order used in any way by man. It has but recently become known to botanists. It is found in Australia, where it affords important supplies of food to the natives of some regions, and has been of great use to some re-



Nardoo (*Marsilea quadrifida*).

cent exploring-parties. It grows in places occasionally covered with water; vegetating while moisture abounds, and then exhibiting abundance of green clover-like foliage, the leaves consisting of leaflets at the top of a stalk some inches in length. When the water dries up, the remains of the plants are often covered with dried mud. It is then that the spore-cases are gathered for food. They are oval, flattened, about an eighth of an inch in length, hard and horny, and requiring considerable force to pound them when dry, but becoming soft and mucilaginous when moistened. The spore-cases, pounded with their contents, are made into cakes like flour.

NARDUS, *nâr'dŭs:* genus of grasses, having a simple spike, spikelets all on one side, no glumes; each spikelet consisting of one floret, which has two paleæ,

Nardus Stricta.

the outer ending in a long point. *N. stricta,* growing in tufts in dry elevated situations, is often called MAT-GRASS: it is perennial, purplish, short, rigid, and worthless, as almost no animal but the goat will eat it.

NAREW, *nâ'rĕv:* river of w. Russia, affluent of the Bug, rising in the govt. of Grodno, and flowing w.s.w. to the main stream, which it joins at Sierock, after a course of 294 m. The waters of the N. are about as great in volume as those of the Bug. It is navigable to Tykoczin, 150 m. from its mouth.

NARGILE, usually NARGHILE, n. *nâr'gĭl-ā* [Pers.]: in *Turkey,* a smoking apparatus in which the smoke is passed through water, by means of a tube, in order to cool it.

NARIFORM, a. *năr'ĭ-fawrm* [L. *nāris,* a nostril; *forma,* shape]: nose-shaped.

NARO, *nâ'rō:* town of Sicily, province of Girgenti, 14 m. e. of the town of Girgenti. Its inhabitants trade in oil, wine, and sulphur. Numerous tombs, medals, and other antiquities have been found here. Pop. 10,253.

NARRAGANSETT BAY, *năr-a-găn'sĕt:* bay of the Atlantic Ocean penetrating the s.e. coast of R. I. about 28 m., varying in width from 2 to 12 m. It forms the e. boundary of Kent and Washington counties, is deep and sheltered, furnishing fine harbors, and is navigable for

large ships to the city of Providence, at its head. The upper portion is known as Providence Bay. There are several light-houses and various fortifications. The bay forms the outlet of the Pawtucket, Pawtuxet, Providence, and Taunton rivers, and contains several beautiful islands, of which the largest are Rhode Island (which gives name to the state), Providence, and Canonicut. There are fisheries of considerable value. The cities and towns along the coasts are noted for beauty of scenery and salubrity of climate.

NARRAGAN'SETT PIER: summer resort in South Kingston township, Washington co., R. I.; about 26 m. s. of Providence and 8 m. from Newport; on the Atlantic Ocean, only a short distance from the mouth of Narragansett Bay. The beach is very fine, and the varied attractions of the place have brought a multitude of visitors. There are a number of fine hotels and many elegant private residences. Communication with other places is furnished by a railroad and by various steamers. From Narragansett Heights, 400 ft. high, about three m. from the pier, an extended view is obtained.

NARRAGAN'SETTS: one of the Algonquin tribes of American Indians. This tribe occupied about the same territory as is now comprised in the state of Rhode Island, and from it Narragansett Bay was named. For a long period the N. were friendly to the colonists, and under the lead of their chief, Canonicus, aided the whites in their conflicts with the Pequots, and in various ways were of great assistance. They ceded a large tract of land to the whites 1644, but the following year engaged in hostilities, which were soon quelled. After the death of Canonicus, 1647, the tribe was less friendly, and 1675 cared for the women and children of the Pequots, while they made an attack on the town of Swanzey, Mass. Canonchet, chief of the N., soon afterward made a treaty with the whites, which he violated when King Philip returned from his murderous expedition in the Connecticut valley. To punish this treachery, the whites attacked the N. and destroyed their fort. Canonchet, with his warriors, then destroyed several villages, but was at length captured and shot. A concerted movement was then made upon the winter quarters of the N., in a swamp in the s. part of their territory, where the N. and their allies were gathered. About 500 wigwams were burned, and 1,000 Indians were slain. The N. were almost annihilated. The few who remained settled in what is now Charlestown, R. I., and gradually became civilized. They intermarried with the whites. In 1833 there were but 158 members of the tribe, and only seven of these were of pure blood. They gave up their native language, but it has been preserved in a grammar published by Roger Williams (London 1643), under the title *Key into the Language of America*. The N. long controlled a reservation of 3,000 acres of land. The tribal authority was maintained till 1880, when it was abolished by act of the state legislature.

NARRATE, v. *năr-rāt'* [L. *narrātus*, told, related—from *narrārĕ*, to relate: It. *narrare:* F. *narrer*]: to tell; to recite, as a story; to relate. NARRA'TING, imp. NARRA'TED, pp. NARRA'TION, n. *-rā'shŭn* [F.—L.]: an account; the telling or relating the particulars of an event; a story. NARRATIVE, a. *năr'rā-tĭv* [F. *narratif*]: giving an account of particulars: N. a continued account of the particulars, as an event; a story. NAR'RATIVELY, ad. *-lĭ.* NARRA'TOR, n. *-tĕr*, one who tells or relates, as the particulars of an occurrence.—SYN. of 'narration': tale; history; recital; relation; description; rehearsal; explanation; detail; narrative; record; memoir.

NARROW, a. *năr'rō* [AS. *nearwe*, narrow—from *neara*, nearer; *neah*, near, nigh: comp. Dut. *naauw;* O. Dut. *nauw*, narrow, close]: not broad or wide; having little distance from side to side; close; near; contracted; straitened; contracted in mind; bigoted; not liberal: V. to contract; to lessen the breadth of; to limit; to confine. NAR'ROWING, imp. NARROWED, pp. *năr'rōd.* NAR'ROWER, n. *-ĕr*, one who or that which narrows or contracts. NAR'ROWLY, ad. *-lĭ*, with little breadth or wideness; closely; within a little. NAR'ROWNESS, n. *-nĕs*, the condition or quality of being narrow; poverty; penuriousness; illiberality in views or sentiments. NARROW CLOTHS, in the *woolen trade*, those cloths under 52 inches wide. NARROW GAUGE, on a railway, width between the rails when less than 4 ft. 8½ in., which is the 'standard gauge;' but sometimes, though not with propriety, the 4 ft. 8½ in. (standard) is termed narrow guage in comparison with the 6 or 7 ft. guage. NARROW-MINDED, a. contracted in mind; illiberal. NARROW-MINDEDNESS, n. narrow views or sentiments; illiberality.—SYN. of 'narrow': circumscribed; limited; confined; contracted; small; niggardly; parsimonious; selfish; ungenerous; careful; exact.

NARSES, *nâr'sēz:* statesman and general, almost the last stay of the old Roman empire in Italy; born toward the last quarter of the 5th c., prob. abt. 478; d. prob. abt. 573. The place of his birth is uncertain. His parentage was obscure, and he was probably sold as a slave in childhood, having, according to the barbarous usage of the period, been previously emasculated. From some menial office in the imperial household at Constantinople, he rose by successive steps to the post of *cubicularius*, or private chamberlain of Emperor Justinian, and ultimately to that of keeper of the privy purse. In the difficult art of courtiership, N. long maintained a pre-eminence. More remarkable, however, was the distinction which this eunuch attained in military affairs. In 538 he was sent to Italy in command of a body of troops, professedly to act in concert with Belisarius (q.v.); but in reality, it is conjectured, with a secret commission to observe and control that general. After some successes, N., having disputed with Belisarius, assumed an independent authority; but his separate command was unfortunate, and he was recalled to Constantinople 539. After

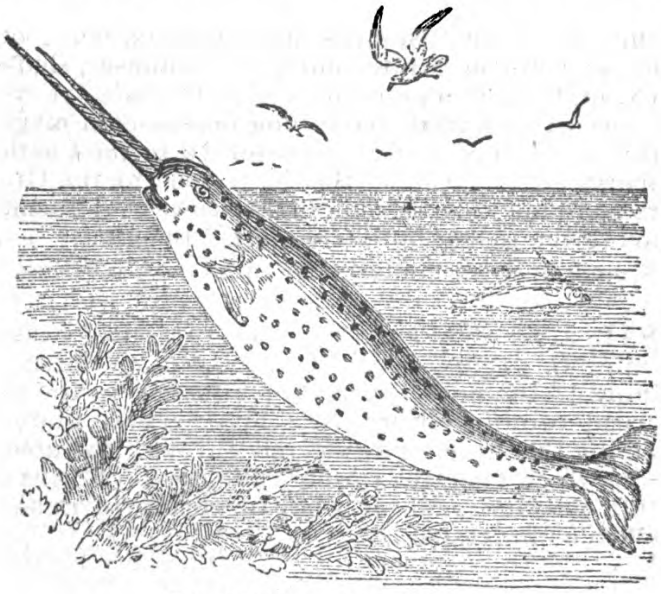
some years, however, Belisarius was recalled, and N. was appointed to chief command in Italy. His conduct of that expedition extorted the admiration even of his enemies. Not having the command of a sufficient number of transports, he marched his army along the whole circuit of the shore of the Adriatic, and while the enemy with his fleet still held possession of the sea, was enabled to encounter them in the plain of Sentaglio, near Tagina, where, after a desperate engagement, the Goths were totally defeated, and their king, Totila, slain. N. took possession of Rome, and after a series of successes both in s. and n. Italy, completely extinguished the Gothic power in that peninsula. Justinian appointed N. prefect of Italy 553. He fixed his court at Ravenna, and continued, till the death of Justinian, to administer the affairs of Italy with great vigor and ability. The only blot on the character of his administrations is the avarice with which he is charged by his contemporaries. His exactions pressed heavily on the exhausted resources of the population; though their severity may be in some degree palliated by the splendor and utility of the public works on which he partly expended the public resources. On the death of Justinian, his ascendency came to an end. The Romans, on the accession of Justin, complained to him of the exactions of N., and that emperor deprived him, 565, of his office; a proceeding to which a special indignity was imparted by an insulting message from the empress, that it was time for him to 'leave arms to men, and to spin wool among the women of the palace.' To this bitter taunt (according to Paulus Diaconus, *De Gest. Long.* ii. 6), N. replied that he would 'spin for her a thread which she would find it hard to unravel;' and he is accused of secretly intriguing with Alboin, King of the Lombards, to incite a new invasion of Italy, at the same time submissively offering his services to the emperor for the purpose of repelling the invasion. This account, however, seems uncertain, perhaps improbable.

NARTHEX, *nâr'thĕks:* a part of the early Christian churches separate from the rest by a railing or screen, and to which the catechumens and penitents were admitted.

NARVA, *nâr'vâ:* Russian town in the govt. of St. Petersburg, 95 m. w.s.w. of St. Petersburg; on the Narova, 10 m. from its mouth in the Gulf of Finland. It was founded 1233 by Waldemar II., King of Denmark, and came into the possession of Russia 1704. The navigation of the Narova is impeded by a waterfall near N., 14 ft. high, which is used as a source of power for driving saw-mills and other works. At N. is the largest cotton-mill in the world, employing 4,830 hands, and producing 610,000 pieces of cloth per annum: the moving force is supplied by water. Woolen and flax goods also are made here. Though belonging to the govt. of St. Petersburg, N. is ruled by the laws of the Baltic provinces. Here, 1700, Charles XII., with 8,000 men, defeated a Russian army of 60,000, under Peter the Great. Pop. (1878) 6,482.

NARVAEZ, *nâr-vâ-ĕth′*, Don Ramon Maria, Duke of Valencia: Spanish general and statesman: 1800, Aug. 4 —1868, Apr. 23; b. Loja in Andalusia. When very young he served in the war of Liberation against the French. He was an officer 1820, when constitutional govt. was re-established in Spain, and 1822, when a reactionary party of the royal guard took up arms to destroy the work of the revolution, N. ranged himself on the side of the liberals, and contributed by his courage to the repression of the mutiny. Shortly afterward under the command of Mina, he made the campaign of Cataluna against the guerrillas, who were assisted by the monks. The invasion of Spain by a French army 1823 forced him to retire from active life. He withdrew to Loja, and lived there in obscurity until the death of Ferdinand VII. 1832. In 1834, as captain of chasseurs, he maintained a hot struggle against the Carlists of the Basque provinces, and signalized himself in various engagements. In 1836 he commanded a division under the orders of Espartero, and in Nov. of that year, completely routed the Carlist leader, Gomez, near Arcos. This was a decisive moment in his career: he became immensely popular, aspired to the highest offices of the state, and was regarded as the rival of Espartero. In 1838, by acts of terrible severity, he cleared the district of La Mancha of brigands, and was appointed 1840 capt.-gen. of Old Castile, and gen.-in-chief of the army of reserve. When Espartero gave Gen. Alaix a place in the ministry, N. resigned his command. He took part in the insurrection against Espartero that broke out at Seville 1840, but that having failed, he was compelled to flee to France, where he was soon joined by Queen Christina (see Maria Christina), and commenced those plots against the govt. of Espartero which effected its overthrow 1843. In 1844 he was appointed pres. of council, and created Duke of Valencia. His ministry was thoroughly reactionary. He recalled Maria Christina, and revised the liberal constitution of 1837. The progressista party was dissatisfied, and petty insurrections broke out, which the rigorous soldier-statesman repressed with an iron hand. But his dictatorial manners finally alienated even his personal friends, and his ministry was overthrown 1846, Feb. 10. After a brief exile as special ambassador at the French court, he returned to power 1847, but soon quarrelled with Queen Christina, and found it necessary again to retire from office 1851. In 1856, on the overthrow of O'Donnell's ministry, he again became pres. of council, and immediately began to strengthen the royal authority, and to restrict the liberty of the press. The intrigues of the court compelled his resignation 1857. He returned to power 1864, and (1865) was succeeded by O'Donnell, with whom he suppressed, 1866, a military revolt in Madrid. He replaced O'Donnell in the same year, and, despite the efforts of O'Donnell and Prim, retained power till his death 1868.

NARWHAL, n. *nâr'hwâl* [Dan. *narhvall;* Icel. *nahvalr;* F. *narval*, a narwhal—so called on account of the pallid color of the skin—from Icel. *nar*, a corpse, and *hvalr*, a whale. (Skeat says that Icel. *nar-* may stand for *nas-* a nose, the long horn projecting like a nose from the upper jaw)], (*Monodon* or *Narwhalus*): genus of *Cetacea*, of family *Delphinidæ*, resembling *Beluga* (q.v.) in form and in lack of a dorsal fin, but remarkably characterized by having no teeth at all, except two in the upper jaw, supposed to be canines, which sometimes remain quite rudimentary, even in the mature animal, as they are in the young, and are sometimes developed into great spirally twisted straight tusks, passing through the upper lip, and projecting like horns in front. Usually but one tusk, the left one, is developed, attaining a length of 6 ft. Only one species is ascertained, *M. monoceros* or *N. vulgaris;* other species being doubtful. It inhabits the Arctic seas, and is very rarely found so far s. as the Shetland Isles, though an accidental wanderer has reached the coast of England. Narwhals are often seen in great numbers among the ice-fields, and in the creeks and bays of the most northern coasts. They com-



Narwhal (*Monodon monoceros*).

monly associate in small herds. The tusks are much more frequently developed in the male than in the female, but in the female also according to some observers they sometimes attain large size. Rarely are both tusks largely developed, though they sometimes are so, and then diverge a little; generally one of them continues rudimentary, or attains a length of only a few inches, while the other becomes a great horn, projecting straight in front, from which the animal has received the name SEA UNICORN. A mature N. is generally about 15 or 16 ft. in length, without reckoning the tusk, 6 to 10 ft. long.

The body is less thick than that of the Beluga; the head is small, the forehead rises abruptly, the muzzle is very obtuse, the upper jaw projects a little; the first half of the body is nearly cylindrical, the remainder to the tail fin is conical. The tusk is hollow nearly to the point. Its use is rather conjectured than known. It is probably a weapon of defense, but Scoresby has suggested that it may be used also for breaking thin ice to obtain opportunity for respiration; and for killing fish, as he found remains of skates and other flat-fish in the stomach of a N., which it is not easy to imagine how a toothless animal, with rather small mouth and lips, could capture and swallow, unless the formidable tusk were first employed. Cephalopodous mollusks, however, are believed to constitute a principal part of the food of narwhals. The N. is a very active animal, swimming with great rapidity, lively, and playful. A group of narwhals playing together, projecting their great horns from the sea, and crossing them in their sport, is a very interesting sight. The N. is pursued by the Greenlanders and other inhabitants of the north, for its blubber, with which its whole body is invested to the thickness of about three inches, amounting to nearly half a ton in weight, and yielding a large proportion of excellent oil. The tusks also are valuable, being of an extremely compact white substance—denser, harder, and whiter than ivory—used as a substitute for ivory. The kings of Denmark have long possessed a magnificent throne of this material, preserved in the Castle of Rosenberg. The flesh of the N. is used by the Greenlanders as food. Great medicinal virtues were formerly ascribed to the tusks; but were merely imaginary.

NAS, *năs:* in *OE.*, contraction of *ne has*, for Eng. *has not.*

NASAL, a. *nā'zăl* [F. and Sp. *nasal;* It. *nasale*, nasal—from mid. L. *nasālis*, nasal—from L. *nāsus*, the nose]: pertaining to the nose; formed or affected by the nose, as a nasal pronunciation: N. a letter whose sound is affected by the nose, or is uttered through the nose; a medicine which operates through the nose. NASCAL, n. *năs'kăl*, a pessary made of wool or cotton to raise the nose when compressed.

NASALIS, *na-zā'lĭs*, or PROBOS'CIS MONKEY (*Nasalis larvatus*): monkey allied to the *Doucs* or *Semnopitheci*, but distinguished from all other monkeys by extreme elongation of nose, that organ being nearly four inches in length in the mature animal. In the young, the nose is comparatively undeveloped. The nostrils are quite at the extremity of the nose, and are separated merely by a thin cartilage. Of what use the magnitude of its

Proboscis Monkey (*Nasalis larvatus*).

nose is to the animal is unknown. The N. inhabits Borneo and neighboring islands, is gregarious, and is about three ft. in height, if placed erect, a position which it does not often assume. It can leap 15 ft. or more. Its fur is thick, not long, nor woolly; chestnut red, and in parts golden yellow.

NASCENT, a. *năs'ĕnt* [L. *nascens* or *nascen'tem*, being in its birth: It. *nascente*]: beginning to exist or grow; growing; increasing: in *chem.*, in the act or state of being produced or evolved. NASCENCY, n. *năs'ĕn-sĭ*, the beginning of production. NASCENT STATE, in *chem.*, state in which an element or compound is said to be at the moment when it is liberated from some chemical combination in which it had previously existed. The element or compound is *then* often capable of exerting far more powerful combining action with other bodies than it can exhibit when brought in contact with them *after* it has been liberated. Arsenic and hydrogen will not directly combine if brought into contact with one another under ordinary circumstances; but the application of Marsh's test (see ARSENIC) depends on the direct union of the nascent hydrogen (liberated by the decomposition of the water) with the arsenic, giving rise to arseniuretted hydrogen gas. Again, if hydrated protoxide of nickel (NiH_2O_2) be suspended in a solution

of caustic potash (KOH), it will undergo no change if a current of oxygen gas be passed through the solution; but if a current of chlorine be substituted for the oxygen, the whole of the metallic protoxide will be converted into the brown sesquioxide (Ni_2O_3), the resulting decomposition being shown in the equation:

Protoxide of Nickel.		Solution of Potash.			Sesquioxide of Nickel.		Chloride of Potassium.		
$2(NiH_2O_2)$	+	KOH	+	·Cl	= Ni_2O_3	+	KCl	+	H_2O

This change arises from the action of the chlorine on the potash, during which chloride of potassium (KCl) is formed, while the nascent oxygen which is liberated from the potash combines with the oxide of nickel. Again, cyanogen (CN) and chlorine do not enter directly into combination; but if cyanogen at the instant that it is liberated from one of its compounds (as, for example, cyanide of mercury) comes in contact with chlorine, the two combine; and many other examples of similar action might be adduced.

NASEBY, *nāz'bĭ:* parish and village of England, the county of Northampton, 12 m. n. of the town of Northampton; pop. 700; scene of the battle of N., between Charles I. and the parliamentary army under Fairfax and Cromwell, 1645, June 14. It resulted in the total defeat of the royalists, the king being compelled to flee, after losing his cannon and baggage, and nearly 5,000 of his army as prisoners.

NASH, *năsh*, ABNER: 1716, Aug. 8—1786, Dec. 2; b. Prince Edward co., Va. He became a successful lawyer in New Berne, N. C.; was a member of the provincial congress 1774, and of the provincial council of the following year. He aided in framing the state constitution, was the first speaker of the house, and afterward speaker of the senate, and 1779–81 gov. of the state. In the latter year he declined to serve. He was member of the continental congress 1782–84, was re-elected 1785, and died in Philadelphia before his term of office expired.

NASH, FRANCIS: 1720, May 10—1777, Oct. 7; b. Prince Edward co., Va.; brother of Abner N. He removed in early life to N. C.; became clerk of the Orange co. court; and 1771, in the conflict with the Regulators, was capt. of a company of royal troops. He joined the patriots at the opening of the revolution, was a member of the provincial congress 1775, by which body he was appointed lieut.col., in 1777 received a commission from the cotinental congress as brig.gen., joined Washington's army, and led a brigade in the battles of Brandywine and Germantown. In the latter battle he received a mortal wound. He died at Kulpsville, Penn. The order of congress that a monument be erected to his memory at govt. expense was disregarded, but private citizens have placed one over his grave.

NASH, JOHN: 1752–1835, May 13; b. London: architect. He underwent the usual training for his profession, but soon entered into some building speculations which enabled him to buy a small property in Caermarthen. Here in fresh speculations he lost much money; therefore, 1792, returned to London and architecture, in which he speedily rose to eminence. On the strength of having obtained a patent, 1797, for improvements in the construction of the arches and piers of bridges, he was in the habit of claiming a great part of the credit of introducing the use of cast-iron girders. A large part of his time was occupied in designing and constructing mansion-houses for the nobility and gentry in England and Ireland, but he is famous chiefly in connection with the great street improvements in London. From 1815, Feb., when he was appointed 'architect, valuer, and agent to the Board of Woods and Forests,' till near the end of his professional career, he was busily engaged in planning routes, grouping buildings, and fixing sites. Regent Street, Haymarket Theatre, Langham Place Church, and the terraces in Regent's Park, are specimens of his designs. The Pavilion at Brighton was another of his works. He retired from his profession 1834. N., notwithstanding his many defects, possessed great power of effective grouping, as is well shown in his works.

NASH, RICHARD, known as *Beau Nash:* man of fashion and society, who attained remarkable notoriety: 1674, Oct. 18—1761, Feb. 3; b. Swansea, in Glamorganshire; son of a Welsh gentleman. After studying at Oxford, he held a commission in the army, and subsequently took rooms in the Temple; but the dissipations of society had more attraction for him than the pursuits of law. He became a diner-out, a frequenter of good society, and contrived to support himself by gambling. But the grand turning-point in his fortunes was his visit, 1704, to Bath—then a favorite haunt of elegant invalids, and the scene of the gayest intrigues. N. undertook the management of the public balls, which he conducted with a splendor and decency never before witnessed. In this way he gained an imperial influence in the fashionable society of the place. It appears that he was distinguished also by a species of sentimental benevolence. He gambled hard and successfully; yet instances are related of his thrusting his own winnings into the hands of some one less fortunate, with theatrical generosity, and exclaiming: 'Go, and be happy.' His own equipage at this period of his career was sumptuous. He used, we are told, to travel to Tunbridge in a post-chariot and six grays, with outriders, footmen, French horns, and every other appendage of expensive parade. He is praised for the great care which he took of the morals of the young ladies who attended the Bath balls, always putting them on their guard against needy adventurers—like himself. In his old age, Beau N. sank into poverty, and often was in need of charity. He died at Bath.

NASHUA, *năsh'ū-a:* city, and one of the caps. of Hillsborough co., N. H.; on the w. bank of the Merrimac river, and at the mouth of the Nashua river; 35 m. s. of Concord, 14 m. n.w. of Lowell, 40 n.w. of Boston. Its s. boundary is formed by the state of Mass., to which state it was, for about 80 years after its charter was obtained, supposed to belong. It was long a portion of the town of Dunstable, suffered greatly in the Indian wars, and did not enter on its career of marked prosperity until about 150 years after its settlement. In 1822 a movement, in which Daniel Webster was prominent, was started for the establishment of manufactures on an extensive scale. Within four years, large mills were erected, and the foundations of a thriving town were securely laid. N. has several railroads, and enormous water-power is supplied by a canal three m. in length and 60 ft. wide. The city was incorporated 1853, at which time it had pop. 8,942. It now (1890) ranks as the second manufacturing city in the state. It has 10 churches, a large number of well-conducted schools, three national and four savings banks, both weekly and daily newspapers, and a public library of more than 6,000 vols. The city is lighted by gas, and has a good supply of water from Pennichuck brook, about three m. away. The cotton manufacturing interests are of great proportions. There are also extensive manufactures of carpets, paper, locks, and machinery. Pop. (1870) 10,543; (1880) 13,397; (1890) estimated 20,000.

NASHVILLE, *năsh'vĭl:* city, cap. of Davidson co. and of the state of Tenn.; on the Cumberland river, nearly 200 m. from its mouth; 206 m. s.w. of Lexington, 684 m. from Washington; lat. 36° 9′ n., long. 86° 49′ w. It is an important railroad centre, and in wealth and population is the first city in the state. It is built on a limestone foundation, from which it derives the name 'City of Rocks,' by which it is widely known. It is 460 ft. above sea-level, is surrounded by hills, and has a pleasant and healthful climate and many natural advantages.

The Cumberland river divides the city into two unequal portions, which are connected by fine bridges. To this point the river is navigable nearly eight months in the year, for boats of 300 to 400 tons, and during several months steamers pass more than 300 m. above the city. Congress appropriated (1888) $210,000 for construction of dams and locks in the river and improvement of navigation. N. is the centre of an immense manufacturing interest, and in various lines is the leading wholesale market of the south. Its sale of agricultural implements reaches nearly a quarter of a million dollars per year, and its grocery trade is exceeded by no southern city except New Orleans. It is one of the principal cotton marts, has an immense trade in tobacco, and is the largest market for hard-wood lumber in the United States. It has three ice factories, 25 saw-mills, large flouring-mills, extensive cotton-mills, a cotton-seed-oil factory, a chewing-gum factory, which employs 140 hands, and in the lines

of wagons, crackers, and candy has far the largest works in the south. There are also large furniture-shops, machine-shops, distilleries, tanneries, and paper-mills, with numerous other manufacturing interests. The banking capital of N. is said to exceed that of any other city of its size in the world. There are several national and private banks, with an aggregate capital of about $5,000,000, and having deposits of more than $4,000,000. In the vicinity of the city are very rich fields of coal and iron, and a large proportion of the capital employed in the great iron mines of the south is controlled in N. The city is lighted by gas, has an elaborate system of water-works, supplying 10,000,000 gallons of pure water per day, and has two valuable mineral springs, which attract many visitors. The street-railway lines, recently consolidated, have about 50 m. of track, and the cars are run by electricity.

Within the city limits are 66 churches, nearly 50 periodicals are published, and two free public libraries are maintained. There are many good hotels and an unusual number of elegant private residences. The state capitol, on an eminence 175 ft. above the lower portion of the city, is three stories high and has a tower rising 206 ft. from the ground; it is built of limestone and is one of the finest structures in the United States. The city hall, court-house, penitentiary, custom-house, Masonic temple, an asylum for the blind, and a hospital for the insane are among notable public buildings. N. has more educational institutions than any other southern city. There are 14 public-school buildings, accommodating 8,000 children, more than 30 private schools and academies, and several higher institutions of learning. Of the latter, Vanderbilt Univ., with an endowment of $1,000,000, under Meth. Episc. S. control, Central Tenn. College, Meth. Episc., Fisk Univ., Congl., and Roger Williams Univ., Bapt., are the largest. Each of these schools has a theological course, and with the first two medical and law schools are connected. The Univ. of Tenn. and the Nashville Univ. also have medical schools.

N. was settled 1780, and four years later was regularly laid out in lots, incorporated, and received its present name (having previously been known as The Bluff and Nashburg); and it obtained a city charter 1806. The legislature met here many times after 1812, but N. did not become the state capital till 1843. A new charter was secured 1883, by which the control of city affairs is vested in a council of 10 members, serving without pay, a paid board of public works, and a mayor elected for two years.

During the civil war, N. was one of the great military depots, was occupied 1862 by Union troops, and suffered severely from the evils inseparable from such a conflict. Since the return of peace, and particularly in the decade 1880–90, it has been remarkably prosperous. Pop. (1870) 25,865; (1880) 43,350; (1886) 75,000, of which 18,000 were colored; (1890) estimated 100,000.

NASH'VILLE, BATTLE OF: 1864, Dec. 15 and 16. After the battle of Franklin, 1864, Nov. 30, in which the Union troops under Gen. Schofield were repulsed by the Confederates under Gen. Hood, the former retired to the elevated grounds around the city of Nashville, and joined the force of Gen. Thomas, which held a strongly fortified position at that point. They were followed by Hood, who formed his lines s. of the city and threw up intrenchments. Meanwhile, Thomas had received reinforcements which, except in cavalry, which had been largely drawn upon to aid Sherman in his march to the sea, made his force nearly equal to that of Hood. Gen. Thomas was soon ready for operations, but severe weather, following a heavy storm of sleet Dec. 8, delayed an attack for several days. Dec. 14 a plan of attack was arranged for the next day. As soon as the fog lifted on the morning of the 15th, this plan was carried into effect. After brilliant fighting on the part of the Union troops, and desperate resistance by the Confederates, the latter were driven from their intrenchments. During the night, Hood took a position at the foot of Harpeth Hills, from which he was driven the following day. The retreating army was followed by the Union troops in full pursuit until Dec. 27, when Hood succeeded in escaping, with what remained of his utterly disorganized force, across the Tennessee river. From this point the main army of Thomas returned, but a Union cavalry force followed still further, and captured a large number of wagons and mules, and destroyed a great amount of property. Besides some 2,000 deserters, the Confederates lost over 13,000 prisoners, 72 guns, and a great quantity of small-arms and ammunition. The loss of the Union army during this campaign was about 10,000 men. The result of the battle was the practical destruction of Hood's army, and a serious blow to the Confederate cause. At his own request, Hood was relieved from command 1865, Jan. 23.

NASICORNOUS, a. *năz'ĭ-kŏr'nŭs* [L. *nāsus*, the nose; *cornu*, a horn]: having a horn on the nose.

NASIFORM, a. *năz'ĭ-fawrm* [L. *nāsus*, the nose; *forma*, shape]: having the shape of a nose.

NASMYTH, *nā'smĭth*, JAMES: engineer and inventor: 1808, Aug. 19—1890, May 7; b. Edinburgh; youngest of 11 children of Alexander N., landscape painter. He early showed strong taste for mechanical pursuits, and by intimacy with an ironfounder's son, and constant visiting of the works, gained a knowledge of model-making which enabled him, by the sale of models of steam-engines and various machines, to pay his fees at the science classes in the Univ. of Edinburgh—chemistry, nat. philosophy, and mathematics. He went to London 1829, and spent two years under the celebrated engineer, Henry Maudslay. Returning to Edinburgh, he constructed a set of engineering tools, with which, and a small capital, he began, 1834, at Manchester, the manufacture of mechanical tools, which rapidly developed into the great Bridgewater Foundry, a collection of workshops at Patricroft, near Manchester, covering 12 acres of ground. His remarkable inventions were made here, including the steam-hammer—a marvellous combination of might and delicacy—steam pile-driver, suction fan for ventilating mines, safety foundry-ladle, spherical-seated safety-valve, and reversing direct-acting rolling-mill. He retired to Penshurst 1857, and applied himself to astronomy, making his own telescopes, and publishing, jointly with Dr. James Carpenter, *The Moon, considered as a Planet, a World, and a Satellite.* He contributed *Remarks on Tools and Machinery* to Baker's *Elements of Mechanism*, 1858.

NASR-ED-DIN, *nâs'r-ed-dēn'*, Shah of Persia: born 1831, April 24; son of Muhammed Mirza, and fourth shah of the Kadjar family. He came to the throne 1848, Sep. 10; put down revolts of neighboring nomadic tribes; suppressed in their blood the religious outbreak of the Bâb and his followers; held himself neutral during the Crimean war, but at its close signed a treaty with Russia; and 1856 became involved in war with England, which was terminated, after repeated English victories, by the treaty of Paris, 1857, Mar. 4. In 1866 he permitted the construction of the Anglo-Indian telegraph across Persia. His dominions suffered from pestilence and famine 1860, and still more terribly 1873, when 2,000,000 are believed to have perished. In 1873 he made the tour of Europe, and published his diary of the journey. A concession made by him, at this time, for establishing railroads and canals, and working mines, was afterward annulled. Besides eight daughters, he has three sons, who are governors of provinces. The eldest, Muzaffer-ed-din, born 1853, Mar. 25, is the Valiahad or heir-apparent. The revenues of Persia all go to the shah; and Shah N. is said to have laid by, mostly in precious stones, a fortune estimated at $35,000,000. He made a second visit to Europe, London and Paris especially, in the summer of 1889.

NASSAU, *năs'aw*, Ger. *nâs'sow:* formerly till 1866 an independent duchy of Germany, now Wiesbaden (in large part), district of the Prussian province of Hesse-Nassau, 49° 50′—50° 50′ n. lat., and 7° 30′—8° 45′ e. long.; bounded w. and s. by the Main and the Rhine, the Prussian-Rhenish provinces, and the grand duchy of Hesse; e. by the Hesse and Frankfort territories; n. by Westphalia; 1,802 sq. m. Pop. (1880) 731,425. Wiesbaden possesses very great physical advantages. In its s. districts, nearly the whole area is occupied by the Taunus Mountains, whose highest point is the Great Feldberg, about 2,900 ft. This range includes within its boundaries the fertile valleys known as the Rheingau. The n. part of the dist. includes the barren highlands of the Westerwald, whose most considerable peak, the Salzburger Head, is nearly 2,000 ft. high. Besides the Rhine and the Main, the boundary-rivers, Wiesbaden is traversed from e. to w. by the Lahn, which becomes navigable at Weilburg, and is augmented by the confluence of numerous other streams, as the Weil, Ems, Aar, Dill, and Elbe. The productiveness of the soil is shown by the excellent quality of the numerous vegetable products, which include corn, hemp, flax, tobacco, vegetables, and fruits, including grapes, which yield some of the most highly esteemed Rhenish wines. The hills are well wooded and abound with game of various kinds, and the rivers yield abundance of fish and crustaceans. In the more mountainous districts, iron, lead, copper, and some silver are obtained, together with good building-stone, marble, and coal; the chief mineral wealth is, however, from the numerous springs, which, directly and indirectly, bring the govt. a clear annual gain of more than 100,000 gulden. The most noted of these springs, of which there are more than 100, are Wiesbaden, Weilbach, Langen-Schwalbach, Schlangenbad, Ems, Selters, and Geilnau, the majority of which were the property of the duke.

Wiesbaden, which is divided into 12 circles, has few towns of commercial importance, but many fashionable watering-places, annually crowded with visitors from every part of the world. Of these, the most considerable are Wiesbaden (q.v.), cap. of the dist.—pop. (1880) 50,238—Schwalbach, Schlangenbad, Fachingen, Selters, and Geilnau. Höchst, an active little place on the Main, is the only manufacturing town of the duchy, but a brisk trade is carried on at many small ports on the Rhine, Main, and Lahn, whence the mineral waters, wines, and other natural products of the country are exported. The exports are wine—including some of the choicest kinds, as Hochheimer, Johannisberger, Rüdesheimer, Markobrunner, Asmannshäuser—mineral waters, corn, iron, manganese, cattle, etc.; while the imports embrace colonial products, manufactured goods, salt, jewellery, etc.

N. had a representative form of government, based on the constitution of 1814; and the duke, who was also a count-palatine of the Rhine, Count of Sayn, Königstein, Katzenellenbogen, and Dietz, etc., was assisted in the

government by a council of state, presided over by a prime-minister. More than one-third of the population belonged to the Rom. Cath. Chh., which was under the ecclesiastical jurisdiction of the bp. of Limburg; and excepting about 19,000 persons who belonged to the Jewish and other persuasions, the remainder of the people, including the then reigning house, professed the 'evangelical' form of German Protestantism, and were comprehended in one episcopal see under the bp. of Wiesbaden. Ample provisions were made in the dist. for popular education: there were more than 700 elementary schools, with about 1,000 teachers, 10 normal schools, a gymnasium, various training, theological, polytechnic, military, and other educational institutions. In accordance with a treaty with Hanover, Göttingen constitutes the university for arts for Wiesbaden, which has also a Rom. Cath. theol. faculty, in conjunction with Hesse-Cassel, at the University of Marburg. Wiesbaden, which is the principal seat for all national institutions of literature, science, and benevolence, has a good public library, containing 60,000 vols., a museum, etc.

N. occupied, in conjunction with Brunswick, the 13th place in the limited council of the diet, but it had two votes in the *plenum*, or full council. It furnished a contingent of 4,279, with a reserve of 1,883 men, to the army of the old confederation.

The receipts, according to the budget of 1866, were 4,461,410 florins derived from the crown domains and indirect taxes, and 317,935 florins from direct taxation, while the expenditure was estimated 5,804,975 florins. The national debt at the close of 1864 represented a capital of 6,038,300 florins. The duke, who was in possession of very extensive domains, ranked as one of the richest princes of Germany.

In tracing the history of N. to its earliest origin, we find that the districts now known by that name were occupied anciently by the Alemanni, and, on the subjugation of the latter people by the Franks, became incorporated first with the Frankish, next with the German empire. Among the various chiefs who raised themselves to independent power in this portion of the Frankish territories, one of the most prominent was Otto of Laurenburg, brother of King Conrad I., who became founder of two distinct lines of princes. The heads of these lines were Walram and Otto, sons of Count Henry I., who, 1255, divided the land between them. Walram II., the elder, was progenitor of the house of Laurenburg, which, toward the close of the 12th c., assumed its present name of N. from the name of its chief stronghold; while Otto, the younger, by his marriage with the heiress of Gelders, founded the line of Nassau-Gelders, whose last male representative died 1423, but which still survives through a female branch, in the family now occupying the throne of the Netherlands. This junior branch of the house of Nassau, by inheritance from a collateral representative, acquired possession, 1544, of the principality of Orange;

and since that period, the representatives of the Otto line have been known as princes of Orange (q.v.). The Walram line, which in 1292 gave an emperor to Germany, in the person of Adolf of N., was subdivided by the descendants of that prince into several branches, until, by the successive extinction of the other lines, the Nassau-Weilburg family, the latest reigning family in the duchy, was left, 1816, the sole heir and representative of the Walram dynasty in Germany. N. had been declared a duchy 1806, and 1817 the reigning Duke William granted a new constitution; but during the first sittings of the assembly dissensions arose between the ducal govt. and the representatives, the former having attempted to establish the proposition that the ducal domains were the unconditional property of the royal house, and that all the expenses of the state would consequently have to be met by taxation.

This proved a fruitful source of dissension between the duke and his people, and the opposition and discontent to which it gave rise were not finally allayed till 1834, when a more liberal ministry, under Count Walderdorff, succeeded the unpopular cabinet which had hitherto directed public affairs. Concessions were made by the ducal govt., which met the requirements of the chambers, and a satisfactory compromise was effected in regard to the crown revenues. In 1836 N. joined the German *Zoll-Verein*, and it has since continued to advance in material prosperity. The reigning Duke Adolphus William, who succeeded his father, Duke William, 1839, showed the same conservative tendencies as his predecessor. The revolutionary crisis of 1848 found the people, who had been harassed by over-government and by a jealous dread of liberal sentiments, ripe for insurrection. The peasantry rose *en masse* in the rural districts, and revenged themselves for the severity of the game-laws, and other obnoxious restrictions, by wanton destruction of game and wood in the forests belonging to the crown and nobility. These disorders were speedily put down by the aid of federal troops; but notwithstanding the concessions made by the govt., the relations between the people and their ruler continued for many years unsatisfactory. For the events which led to the incorporation of Nassau with Prussia, see GERMANY.

NASSAU, *năs'aw:* town, cap. of New Providence, centre of the trade of the Bahamas (q.v.), pleasantly situated on the face of a hill, lat. 25° 5′ n., long. 71° 21′ w. The town is well laid out; has several handsome public buildings, and an excellent and well-sheltered harbor. The climate is very salubrious, and N. is a great resort of invalids from the north. It has extensive hotel accommodation, a lunatic asylum, and a leper-house, and is defended by two forts. N. exports cotton, pimento, and salt. During the civil war in the United States, it became notorious in connection with the blockade-runners. Pop. 9,000.

NAS'SAU HALL: see NEW JERSEY, COLLEGE OF.

NASSICK, *nâs'ĭk*, or NASHIK: town of British India, in the dist. of N., presidency of Bombay, 95 m. n.e. of Bombay, on the river Godavery, not far from its source. It is a town of great sacredness in the estimation of the Hindus—more revered than even Benares; is a great place of pilgrimage, chief seat of Brahmanism in the Deccan, and residence of many families of Brahmans, some of them living in great affluence. It contains many temples, built along both banks of the Godavery and on rocks in the river. They all are of black basalt, and dedicated to Siva. Of far greater interest, however, are the Buddhist caves, about 5 m. from the town, in a conical hill, at a height of about 100 yards from its base. They are rudely executed. The figures which they contain are in good preservation, and the leading figures are those of Buddha; but the whole character of the remains is thought to indicate Buddhism in a state of transition or compromise with Brahmanism. One cave is 45 ft. square, and its flat roof is wholly unsupported. Notwithstanding the Buddhist origin and character of these caves, the Brahmans of N., for the sake of gain, encourage the popular reverence for them. Pop. (resident) of N. (1881) 27,070.

NASSOLOGY, n. *năs-sŏl'ŏ-jĭ* [Gr. *nassō*, I stuff; *logos*, discourse]: the art of preparing specimens of animal bodies, or the art of stuffing them.

NAST, *năst*, THOMAS: caricaturist: born 1840, Sep. 27, Landau, Bavaria. He came with his father to America 1846; had instruction in drawing about six months, under Theodore Kaufmann, and at once began work on *Frank Leslie's Illustrated Newspaper;* went to England 1860, to make sketches of the Heenan-Sayres prize-fight for the *N. Y. Illustrated News;* and thence to Italy, to follow Garibaldi and make war-sketches for the *N. Y. Illustrated News*, the *Illustrated London News*, and *Le Monde Illustré* of Paris. Returning to America 1861, he made a permanent connection with *Harper's Weekly;* began 1862, July, drawing war-sketches of the contest between north and south; was most successful with his earliest political caricature, aimed at the peace party; and from that time became by his cartoons a notable figure in American journalism. In 1873, again 1885 and 87, he appeared on the lecture platform, with caricature illustrations, or oil landscapes and other sketches, executed before his audiences. He brought out 1872, and for several years, *Nast's Illustrated Almanac*, and has illustrated books of Nasby and Dickens. Till 1884 he was politically a republican, but later helped to elect Pres. Cleveland.

NASTILY, NASTINESS: see NASTY.

NASTURTIUM, n. *năs-tĕr'shŭm*, or NASTUR'TION, n. *-shŏn* [L. *nāsus*, the nose; *tortus*, twisted—*lit.*, nose-wring, as if their qualities when tested would cause the nose to twist]: the water-cress, the Indian cress, etc.; *Tropæŏlum majus*, ord. *Tropæōlācĕæ:* see CRESS: TROPÆOLUM.

NASTY, a. *nâs'tĭ* [formerly written *nasky:* Low Ger. *nask*, dirty, piggish: Lap. *naske*, unclean, dirty: Fin. *naski*, a pig: prov. Sw. *snaskig*, nasty; *snaska*, to eat like a pig]: very dirty; filthy; obscene; nauseous. NAS'TILY, ad. *-tĭ-lĭ*. NAS'TINESS, n. *-nĕs*, filthiness; dirt.—SYN. of 'nasty': dirty; foul; sordid; disagreeable; defiled; disgusting; indelicate; indecent; gross; lewd.

NATAL, a. *nā'tăl* [F. *natal*—from L. *natālis*, of or belonging to birth—from *nātus*, born: It. *natale*]: of or relating to birth; native.

NATAL, *nâ-tâl':* British colony on the s.e. coast of Africa, about 800 m. e.n.e. of the Cape of Good Hope, between 29° and 31° s. lat., and 29° and 32° e. long. Its n.e. boundary is the Tugela or Buffalo river, which divides it from Zululand, and its s.w. boundary are the Umzimculu and Umtamouna rivers, separating it from Kaffraria proper. It is abt. 270 m. long from n. to s., and 170 m. broad from e. to w.; 18,750 sq. m. The region now forming the colony of Natal derives its name from its being discovered by the Portuguese on Christmas day 1497. It was visited about 1822 by several white traders from the Cape, who found the country in possession of the Zulu chief Chaka, who ruled in a most sanguinary manner over all the tribes, from the Umzimculu to the St. Lucia river. He was killed and succeeded by his brother Dingaan 1838; but the latter having treacherously murdered a party of emigrant Dutch Boers, who had paid him a friendly visit by invitation to buy land, he was attacked and finally destroyed by the Boers, who at that time had emigrated from the Cape Colony in large numbers, and who made his brother Panda paramount chief in his stead, and then settled themselves down in the country as his lords and masters. The Brit. govt., however, interfered, and, after a severe struggle on the part of the Boers, the country was formally proclaimed a British colony 1843, May 12, since which time it has made satisfactory progress. In 1856, it was erected into a distinct and separate colony, free from the control of the govt. of the Cape. In 1873, Langalibalele, a chieftain of Zulus within the N. frontier, was on suspicion treated very summarily by the colonial govt., and banished. The English govt. decided that the proceedings were illegal, and Sir Garnet Wolseley was sent as temporary governor. It was mainly because the security of N. was menaced by the warlike forces and equipments of Ketchwayo, nephew of Dingaan, king of the free Zulus, that the Zulu war of 1879 broke out. Zululand was invaded by the British, and after a fierce defense was finally parcelled out (see ZULU). Most of the fighting during the rising of the Transvaal Boers in 1881 was done in N.

A lofty and rugged range of mountains, the Quathlamba or Drachenberg, divides N. from the Free State and Basutuland. These mountains are a confused mass of granite, gneiss, sandstone, basaltic veins, and shale, and present both the flat-top and serrated summits of

the chain, of which they are a continuation, so well known in the Cape Colony as the Sneeuwberg and Stormbergen. About lat. 28° 30′, these mountains seem to reach their culminating-point, and probably attain a height of 10,000 ft., forming a summit-line of watershed, from which flow to all points of the compass the waters of the Orange, Umzimvoobo, Vaal, Tugela, and other large s. African streams. Toward the coast, these mountains present a scarped and almost inaccessible face; toward the interior they gradually die away into the immense rolling plains of the Free State. Many offshoots from these mountains traverse the colony, dividing it into a series of steps or plateaux, gradually rising from the coast region to the foot of the mountains, and forming so many zones of natural productions. The coast region, extending about 25 m. inland, is highly fertile, and has a climate almost tropical, though perfectly healthful. Sugar, coffee, indigo, arrow-root, ginger, tobacco, and cotton thrive amazingly, and the pine-apple ripens in the open air with very little cultivation. The midland terrace is more fit for the cereals and usual European crops; while on the higher plateau, along the foot of the mountains, are immense tracts of the finest pasturage for cattle and sheep.

The climate is very salubrious; the thermometer ranges between 90° and 38°, but the heat, even in summer, is seldom oppressive. The mean annual temperature at Pietermaritzburg, the capital, is 64° 71′. The winter begins in Apr. and ends in Sep.; average number of rainy days 13. In summer, thunder-storms are very frequent and severe. The annual rainfall on the coast is about 35 inches. Inland, it varies much in different districts, and is greatest in summer. The s.e. is the prevailing wind here in summer as in the Cape Colony. Occasionally the sirocco or hot wind from the n.w. is felt, terminating usually in a thunder-storm.

N. has but one natural harbor on its coast, and that is D'Urban, or Port Natal, lat. 29° 53′. It is completely landlocked, but a bar prevents vessels above a certain tonnage from entering; generally on it the depth of water varies from 9 to 18 ft. There is secure holding-ground in the outer anchorage. The harbor of D'Urban is of such importance to N., that many extensive engineering operations have been carried on for improving it and increasing the depth at the entrance. The principal rivers are the Tugela or Buffalo, the Umcomanzi, Umgani, and Umzimculu; like the majority of s. African rivers, they are useless for inland navigation; but their streams are permanent, and often available for irrigating purposes, thus giving N. in one essential point a decided superiority over the Cape Colony. Efforts are being made to improve the mouths of two of the rivers for harbors.

Coal, copper-ore, iron, and other minerals are found in several places, and doubtless, when the great mountain-range is properly explored, it will be found very rich in mineral wealth. Large forests of valuable tim-

23-15

ber abound in the kloofs of all the mountain ranges, and many tracts along the coast also are well wooded. N. is divided into the following counties: D'Urban, Victoria, Alexandra, and Alfred on the coast region; Pietermaritzburg, Umcomanzi, and Umroti, central; and Klip River and Weenen at foot of the mountains. The cap. is Pietermaritzburg, pop. about 7,000, on a tributary of the Umgani river, about 50 m. inland. It possesses a large military establishment. Its name is a compound of the Christian name of Pieter Rietief, and the surname of Gert Maritz, two leaders of the immigrant Boers. D'Urban or Port Natal, a flourishing town, has railway communication with Pietermaritzburg and Ladysmith, with its landing-place, and with several points on the coast. Pop. of town and suburbs (1881), 14,000, of which half are Europeans. It has two newspapers, and several banks and other public institutions. Verulam, Weenen, Richmond, Newcastle, Pinetown, Colenso, Greytown, and Ladysmith are thriving towns.

N. is governed by a governor (lieut.gov. till 1880), aided by an executive council of five; and by a legislative council of 13 members appointed by govt. and 15 elected by the constituencies. The Wesleyan Chh. (English) is strong in the colony; and the Congl. churches and the Rom. Cath. Chh., with the Anglican, Scottish, Dutch, and other churches, are well represented: also there are many successful stations of the American, Norwegian, and Berlin missions. Education is now receiving much attention, and schools are multiplying.

The De Beer and Bezuidenhout passes are the only practicable roads across the mountains, and lead by very circuitous routes across the Free State into Cape Colony; and the numerous mountain streams lacking bridges render internal communication very difficult. Three lines of railway, total length 104 m., are built or under construction; the chief, to connect D'Urban with the capital, was finished 1880.

The principal articles of export from N. are wool, sugar, ivory, and hides. The wool exported to Great Britain 1884 was valued at £494,486, and weighed 9,302,-395 lbs.: total value of exports (1884) £957,520. The exports comprise cotton, ivory, sugar, coffee, arrowroot, wool, hides, feathers, molasses, and rhinoceros horns. Value of imports (1884) £1,675,850 (as compared with £2,336,584 in 1880). Revenue (1886) £781,950, raised from custom-duties, transfer dues, taxes on native huts, etc.; expenditure, £780,000. N. was well represented at the Colonial Exhibition of 1886. The pop. consists of Dutch Boers; of English and German settlers; and the remains of the Zulu tribes, who originally possessed the country. It numbered (1880) 404,363, of whom 25,271 were whites. The returns as to the native population are only approximate, and calculated on the 'hut tax.' The natives, the most industrious of the Kafir races, possess horses, cattle, sheep, etc., and properly managed, make excellent servants. The growth of sugar culture

has led to the introduction of coolies from India. The total tonnage of the vessels that entered and cleared the port of D'Urban (1880) was 402,851 tons. The discovery and development of the diamond-fields on the Vaal river have promoted the prosperity of N.

The large animals are gradually disappearing, though elephants are still occasionally seen in the dense bush of the coast region. Lions, leopards, wolves, and hyenas still hang on the outskirts of civilization. The smaller antelopes are plentiful, and alligators are found in nearly all the rivers n.e. of the Umzimculu. N., besides several poisonous snakes, produces a small species of boa, which sometimes attains a length of 16 ft. The hippopotamus is still found near the mouths of the rivers on the e. frontier.

The botany of this region resembles that of Kaffraria proper, though generally more tropical. All the timber-trees of the Cape Colony are found here, besides many others. The climate of the coast region, however, is too warm for the grape, at least for the purpose of wine-making.

Brook's *Natal*, by Mann (1869); *The Cape and South Africa*, by Noble (1878); Silver's Handbook to *South Africa* (1881); Kermode's *Natal* (1882).

NATAL', JOHN WILLIAM COLENSO, Bishop of: Anglican divine : 1814, Jan. 24—1883, June 20; b. St. Austell, Cornwall. He was educated at St. John's College, Cambridge; graduated 1836; became one of the the masters of Harrow School, and, 1842, tutor of St. John's College.

In 1846 he was appointed rector of a parish in Norfolk, and in 1854 first Bishop of N., s. Africa. His two treatises on Algebra (1849) and Arithmetic (1853) had great popularity, and were adopted as text-books in many schools and colleges. He publicly manifested his respect and affection for the Rev. Frederick D. Maurice (q.v.), at the moment when that gentleman was in disgrace with the 'orthodox' section of the religious world, by dedicating to him a vol. of sermons, and by his edition of the *Communion Service, with Selections from Writings of the Rev. F. D. Maurice* (1855). In the same year appeared his *Ten Weeks in Natal;* 1861, his *Translation of the Epistle to the Romans, commented on from a Missionary Point of View;* and *A Letter to his Grace the Archbishop of Canterbury, upon the Question of the Proper Treatment of Cases of Polygamy, as found already existing in Converts from Heathenism*, in which he recommends, on grounds both of reason and Scripture, that converts to Christianity, already possessing several wives, should *not* be forced to put them all away, except one. The *Letter* brought on him severe criticism, but a tempest of disapprobation burst forth in the following year (1862) when he published *The Pentateuch and Book of Joshua Critically Examined*, in which he endeavored to prove that, as they stand, these books are not the products either of the age to which they are usually assigned, or of the authors whose names they bear; and that they

are not entirely historical, but in many passages are overlaid with legendary, mythical, and symbolical incidents. The last part of this work was published 1879. The bp. of Cape Town, the metropolitan bishop, declared Colenso deposed from his see; but on appeal to the privy council 1865, the deposition was pronounced null and void. He earnestly defended the African against the injustice of the white man; he visited England to plead the cause of Langalibalele 1874. He edited *Cetshwayo's Dutchman*, 1879. Other works by the bishop are *Natal Sermons* (1866); and *Lectures on the Pentateuch and the Moabite Stone* (2d ed. 1873).

NATAL', or RIO GRANDE DO NORTE, *rē'ō grân'dā dō nor'tā:* city, fortified seaport of Brazil, cap. of the province of Rio Grande do Norte; on low lands about three m. from the mouth of the river of that name, 100 m. n. of Parahiba. Pop. 10,000.

NATANT, a. *nā'tănt* [L. *natans* or *natan'tem*, swimming]: swimming; floating on the surface. In *her.*, see NAIANT. NA'TANTLY, ad. *-lĭ*. NATATION, n. *nă-tā'shŭn*, the act or practice of swimming. NATATORES, n. plu. *nā'tă-tō'rēz* [L. *natātor*, a swimmer]: the swimming order of birds, distinguished by their webbed or partially webbed feet; called by Cuvier *Palmipedes* (q.v.). NA'TATO'RIAL, a. *-rĭ-ăl*, swimming; formed for swimming. NA'TATORY, a. *-tĕr-ĭ*, adapted for swimming.

NATCHEZ, *năch'ĭz:* city, cap. of Adams co., in s.w. Mississippi, second city in size in the state; a port of entry 280 m. above New Orleans. It is finely situated on the e. bank of the Mississippi river, with a lower business section on a narrow strip of the river bank, called 'N. landing' or 'N. under the hill'; and a more extensive part, largely occupied with residences and public buildings, on the summit of a bluff 150 ft. above the river, known as 'N. on the hill.' The communications between the two parts are by broad and well graded roads; the brow of the bluff along the whole front of the city is a park; the streets are well made gravelled roads, with beautiful shade trees, many handsome residences with fine grounds and gardens; and with such public buildings as the court-house, the city hall, market house, masonic temple, Rom. Cath. cathedral, Presb. church, and Episc. church. There were many beautiful residences of wealthy planters in the suburbs of N. before the civil war, few of which remain as formerly. A tornado laid in ruins a large part of the city 1840; and 1862, May 12, a part of Farragut's fleet captured it. It is the cotton shipping port for a large and rich district, and has good steamboat connections with the whole Mississippi valley. The earlist settlement by the French, was planned 1700, but not made until 1716, when Bienville built Fort Rosalie on the bluff. The Natchez (q.v.) Indians wrought destruction and massacre 1729, Nov. 1, but were shortly afterward exterminated or driven away. English occupation began 1763; and Spanish 1779, con-

tinuing to 1798, March. The terr. of Miss. was created 1798, April, and N. made the capital. It became a city 1803. In 1820 Jackson was made the cap. of the state. Pop. of N. (1850) 4,434; (1860) 6,612; (1870) 9,057, of whom 5,239 colored; (1880) 7,058.

NATCH'EZ: tribe of American Indians, of the Huaxteco-Maya family traditionally, who were found by Spanish explorers 1560, and by La Salle 1683, on the land e. of the Mississippi, which was first settled by Iberville, and where the city of Natchez now stands. Their civilization was very much beyond that of tribes about them, and in customs, language, and religion by sun-worship and the keeping of a sacred fire, they showed Aztec relations. Their principal chief was called 'the great sun,' they constructed mounds, and had a large temple for the perpetual sacred fire. Noted for licentious customs, they were yet brave and friendly to the French, until their collisions with Bienville 1716 and 22, and the outbreak against Chopart's rule, and the massacre, 1729, Nov. 28, of nearly all the French. This event led to French and Choctaw joint war for two years on the N., killing a large part of the warriors, selling 400 prisoners, including the chief and his family, into slavery in St. Domingo, and driving the remnant into Texas, where about 300 have since lived with the Chickasaws and Muskogees, keeping up the old ways of the tribe. The Natchitoches, whom the fugitive Natchez dislodged 1731 from their fortified town on an island in Red river, La., were kindred to the Natchez. They united with the Caddoes, another kindred tribe.

NATHLESS, ad. *năth'lĕs*, and NATHELESS, ad. *năth'lĕs:* an old spelling of NEVERTHELESS.

NATHMORE, ad. *năth'mōr*, or *nāth'mōr*, or NATHEMORE: in *OE.*, for NONE THE MORE.

NATICIDÆ, *nā-tĭs'ĭ-dē:* extensive family of gasteropod mollusks, of the section *Branchifera*, order *Prosobranchiata*, sub-section *Holostomata*. In the same sub-section are the periwinkles, river-snails, top-shells, ear-shells, tooth-shells, and limpets. In N. the shell is globular, foot very large, mantle lobes hiding more or less of the shell. The family embraces many species diffused throughout all seas, representatives of most of them found on the American coasts. They are carnivorous, feeding voraciously on other mollusks and on dead fish. The radula or lingual ribbon has teeth in seven rows which enable them to perforate shells. The fossil genus *Natica* is found in Upper Silurian, Devonian, Carboniferous, and Permian formations, and is abundant in the triassic, jurassic, cretaceous, and tertiary.

NATICK, *nā'tĭk:* town of Middlesex co., Mass., on the Boston and Albany railroad, 17 m. from Boston, 4 from Framingham, with a branch road n.w. to Saxonville. The Charles river crosses the s.e. part, and Cochituate Lake, a principal source of the water supply of Boston, lies partly within the town on the n. The outlying parts are occupied by small farms, market gardens, and country residences, and in the business centre are numerous extensive manufactories of boots and shoes: also hats and base-balls are made, and there is the usual trade of a centre of industry. There are water and gas works, a national bank, savings bank, fine public library and library building, eight churches, a high school, and a weekly newspaper. The town was incorporated 1781. Its history dates from John Eliot's coming 1651 with a band of 'praying Indians' from Nonantum, and his establishment of a church 1660, now represented by the Unitarian Church. A monument to the memory of Eliot stands in the cemetery. Felchville and South N., villages and business centres, are within the town limits. A representative of the shoe trade in N. was Henry Wilson, who rose to the U. S. senate and was vice-pres. 1873. —Pop. (1870) 6,404; (1880) 8,479; (1885) 8,460.

NATION, n. *nā'shŭn* [F. *nation*—from L. *natĭōnem*, a race, a tribe—from *natus*, born]: the inhabitants of one country united under the same government; a state or independent soc. united by common political institutions: also in a different application, an aggregate mass of persons connected by ties of blood and lineage, and sometimes of language—a race. The modern dogma of nationalism, as maintained by a class of theoretic politicians (and which might more properly be called *racialism*—leaving nationalism to denote the recent modified application of socialism in pol. econ.), starts from an assumption that a nation in the latter or race sense ought necessarily to be also a nation in the former or political sense, and endeavors to assign limits to the several races of Europe, with the view of erecting each into a distinct state, separated from other states or nationalities. The extreme politicians of this national school seems to consider the supposed rights of nationalities as paramount even to the obligations of treaties, and the political conjunction of one nationality with another is looked on by them as an adequate ground for a revolt or separation, apart altogether from the question whether the nationality is well or ill governed. In fact, the different races in Europe are so commingled, that any reconstruction of the political map of Europe, on ethnological principles, would be impossible, even if desirable. The blood of nine-tenths of Europe has been mixed within the historical period. The test of language, on which nationality has sometimes been based, is a deceptive one, so far as it is indefinite and perpetually fluctuating. The people on the frontier between two races, as in the South Tyrol, generally speak two languages. Moreover there are dialects, like the Walloon, the Gröd-

nerisch of the Tyrol, and the Romansch of the Grisons —as also the Breton, Welsh, Gaelic, and Irish languages, which could hardly be made the basis of independent communities. The well-being of the people governed is properly the end of all government, and it has practically not been always found that a state is better governed when it consists of one race only, than when it includes an aggregate of races. Highly diversified nationalities may be united in one political system, provided only that the government respects and consults the peculiarities of the several races, and does not attempt to force the usages, habits, or language of one on the rest. See ETHNOLOGY. NATIONAL, a. *năsh'ŭn-ăl*, pertaining to a nation; public; general. NA'TIONALLY, ad. *-lĭ*. NA'TIONAL'ITY, n. *-ăl'ĭ-tĭ*, the quality of being strongly attached to one's own country; national character; any body of a population differing in race, language, and national feeling from the governing race of the state to which they belong. NA'TIONALIZE, v. *-ăl-īz*, to make national. NA'TIONALIZING, imp. NA'TIONALIZED, pp. *-īzd*. NA'TIONALISM, n. *-ăl-ĭzm*, nationality: in pol. economy, in two different applications—(1) Racial Nationalism (see above); (2) Industrial Nationalism, a kind of state socialism (see NATIONALISM, INDUSTRIAL). NATIONAL DEBT, the money owing by a nation or state (see DEBT, NATIONAL). LAW OF NATIONS, that law which natural reason appoints for all mankind; international law: see LAW: INTERNATIONAL LAW.

NATIONAL CONVENTION: assembly of deputies of the people, which assumed the whole government of France on the overthrow of the throne 1792. When the National Assembly (see ASSEMBLY, NATIONAL) had decreed the suspension of the king, 1792, Aug. 10, it appointed the election of the N. C., which commenced its sittings Sep. 21. Its first act was to declare France a republic, Sep. 25. Upon this followed the trial and condemnation of the king. Through the support of excited mobs, the extreme Jacobin party became predominant in the convention; where, from the elevated seats on which its members sat, it received the name of the *Mountain* party. The *Revolutionary Tribunal* was established; the chief administration of affairs was intrusted to the *Committee of Public Safety*, which exercised the most despotic powers. The Girondists (q.v.), at first a powerful party in the convention, were destroyed, many of them perishing by the guillotine; and a new constitution, thoroughly democratic, was adopted, 1793, Aug. 10; but its operation was suspended until peace should be restored. Meanwhile, the actual rulers of the country displayed marvelous energy; almost a million of citizens being placed under arms, and immense provision of all warlike stores made by means of requisitions. They also proceeded with merciless severity against their political opponents, dealing with them as traitors; hundreds of thousands were thrown into prison, and the number who died by the guillotine increased daily both in Paris

and throughout France. The N. C. itself latterly became subject to the dictatorial power of Robespierre; many of its members were guillotined within a few weeks; and independent opinion was no longer expressed. The overthrow of Robespierre was followed by a great reaction; the Jacobins were suppressed; and, finally, the N. C., after concluding peace with Prussia and Spain, dissolved itself 1795, Oct. 26 (4th Brumaire of the year IV.), leaving to the nation a new constitution, which placed the govt. in the hands of a Directory (q.v.).

NATIONAL COVENANT: see COVENANTS, THE.

NATIONAL DEBT: see DEBT, NATIONAL.

NATIONAL (or STATE) EDUCATION: see EDUCATION, NATIONAL OR STATE: ENDOWED SCHOOLS ACTS.

NATIONAL GALLERY: principal depository of the pictures belonging to a nation. The N. G. of England is a building in Trafalgar Square, London, finished 1838 at a cost of £100,000, but enlarged 1861,69, and 76. The nucleus of the N. G. was the Angerstein collection of 38 pictures, purchased 1824 for £57,000, and a considerable sum is now annually voted by parliament for the purpose of adding to it. This appropriation, usually abt. £10,000, has been intermitted or reduced in recent years (amounting to £2,000 in 1888) because of special purchase, from the Blenheim collection, of Raphael's *Madonna degli Ansidei* for £70,000, and of Vandyck's *Equestrian Portrait of Charles I.* for £17,500. The collection is most valuable to the student of art, and occupies nearly 20 rooms. The various early and late Italian schools are extensively illustrated; there are good examples of the chief representatives of Italian art, as Raphael, Correggio, Paul Veronese. There are a few good examples of Murillo and Velasquez and the Spanish school. The great Dutch and Flemish painters, Rembrandt, Rubens, Vandyck, and the others, are well represented. English art occupies of course several of the rooms. Among English pictures most conspicuous are the 50 works of Turner, bequeathed by that master of landscape-painting to the nation. A new ed. of the official catalogue, revised and enlarged, was published 1889. The visitors (1888) numbered 550,817. The Royal Acad. of Arts, which formerly had its headquarters here, is now established at Burlington House.—The NATIONAL PORTRAIT GALLERY, a rich collection of portraits of national worthies and notabilities, is at South Kensington.

NATIONAL GUARD: in European continental countries, organization for local defense, differing from the British Militia and Volunteers, in being at the disposal of the municipalities, not of the crown. Italy, Greece, and other nations have maintained this civic force; but the country whence it derives historic fame is France: see GARDE NATIONALE.—In N. Y. and N. J., the term N. G. is applied to the state militia.

NATIONALISM.

NATIONALISM: name given to a scheme for social and industrial reform, and to the organized effort in its behalf, which has attained large proportions in the United States since the summer of 1888, at which time the movement first took definite shape. The awakening of thought on economical questions, within the last decade, has been extraordinary. Socialism (q.v.), long regarded as the red spectre of desolation, whose adherents could be found only among the oppressed classes or in the ranks of fanatical theorizers, has in late years made thousands of converts among advanced thinkers in Europe and America. It is a noticeable fact that many prominent writers on political economy, in the most enlightened countries, are now either avowed socialists or socialistic in the drift of their speculations. Whether for good or ill, the public mind of America is increasingly influenced by socialistic doctrines. *Progress and Poverty*, the powerful work of Henry George, published 1881, did much to spread this influence: the Nationalists claim that it prepared the way for the reception by progressive thinkers of broader and higher truths in sociology.

In 1888, Jan., Edward Bellamy, a quiet literary man in Chicopee Falls, Mass., gave to the world a romance, *Looking Backward*, in which he pictured an ideal commonwealth, founded on an industrial system of national co-operation and association—a true republic in which should be realized a condition of perfect justice, with equal rights and equal opportunities for all—the dream of all social reformers of the past. Whatever criticisms this book may deserve in regard to the fanciful dressing of the minor details of life under a social system, its economical arguments were certainly so set forth as to produce an immediate and wide impression. This novel had the effect of showing how widespread was the unspoken, often unconscious, dissatisfaction with some manifest tendencies of the present civilization; gathering the floating ideas in the minds of men toward a concrete object of thought and effort.

Boston, which so many times before has been the mother of reform agitations, gave birth to the first organized Nationalist Club of this country. The use of the term 'Nationalist' in a letter of Edward Bellamy, replying to a friend's proposal for the formation of such a club, suggested the title afterward adopted as the permanent designation of this reform party: he had spoken of 'the Nationalist ideas' of his book. After preliminary meetings, a regular Nationalist Club was organized, and officers elected, 1888, Dec. 15. The movement has spread rapidly. England, and Australia even, have felt the impulse. Thriving clubs exist in nearly every state of the Union. A monthly magazine, *The Nationalist*, was established 1889, May: it is owned and controlled by members of the Boston club, and in its first year it attained a subscription list of nearly five thousand.

NATIONALISM.

The Declaration of Principles adopted by the parent club reads as follows: 'The principle of the Brotherhood of Humanity is one of the eternal truths that govern the world's progress on lines which distinguish human nature from brute nature. The principle of competition is simply the application of the brutal law of the survival of the strongest and most cunning. Therefore, so long as competition continues to be the ruling factor in our industrial system, the highest development of the individual cannot be reached, the loftiest aims of humanity cannot be realized. No truth can avail unless practically applied. Therefore those who seek the welfare of men must endeavor to suppress the system founded on the brute principle of competition, and put in its place another, based on the nobler principle of association. But, in striving to apply this nobler and wiser principle to the complex conditions of modern life, we advocate no sudden or ill-considered changes; we make no war upon individuals; we do not censure those who have accumulated immense fortunes simply by carrying to a logical end the false principle on which business is now based. The combinations, trusts, and syndicates of which the people at present complain, demonstrate the practicability of our basic principle of association. We merely wish to push this principle a little further and have all industries operated in the interest of all by the nation—the people organized—the organic unity of the whole people. The present industrial system proves itself wrong by the immense wrongs it produces; it proves itself absurd by the immense waste of energy and material which is admitted to be its concomitant. Against this system we raise our protest; for the abolition of the slavery it has wrought and would perpetuate, we pledge our best efforts.'

The principles and purposes of Nationalism can be best explained by a few extracts from an address by Mr. Bellamy in Tremont Temple, Boston, at the first anniversary of the Nationalist Club, 1889, Dec. 19.—'No fact is better established by experience or more demonstrable by reason than that no republic can long exist unless a substantial equality in the wealth of citizens prevails. Wealth is power in its most concentrated, most efficient, and most universally applicable form. In the presence of great disparities of wealth, social equality is at an end, industrial independence is destroyed, while mere constitutional stipulations as to the equal rights of citizens, politically or before the law, become ridiculous. The vast disparities of wealth afford on every side inhuman contrasts of cruel want and inordinate luxury. In all directions the old ways of legitimate business and steady application are being abandoned for speculative projects, gambling operations, and all manner of brigandage, under forms of law. The consequences of the appropriation of the nation's wealth by a few, and its further concentration by means of corporations and syndicates, have made possible a

policy of monopolizing the control and profits of the industries of the country, never before even imagined as among the possible perils of society.'

The Nationalist program embraces the idea of the progressive nationalization of the industries of the United States; in short, it advocates the ultimate governmental ownership and control of all land, capital, and labor. The following are some of the measures for which the Nationalists believe the country now ready: 1, Nationalization of railroads, whether by constituting the United States perpetual receiver of all lines, to manage the same for the public interest, paying over to the present security-holders, pending the complete establishment of Nationalism, such reasonable dividends on a just valuation of the property as may be earned; or by some other practicable method not involving hardship to individuals: 2, Nationalization of telegraphs and telephones, and their addition to the post-office, with which, as departments of transmission of intelligence, they should properly always have been connected: 3, That the express business of the country be assumed by the post-office, according to the successful practice in some other countries: 4, That coal-mining, which at present is most rapaciously conducted as respects the public, and most oppressively as regards a great body of laborers, be nationalized, to the end that the mines may be continuously worked to their full capacity, coal furnished consumers at cost, and the miners humanely dealt with: 5, That municipalities generally shall undertake lighting, heating, street-car service, and such other public services as are now performed by corporations, to the end that such services may be more cheaply and effectually rendered; that a fruitful source of political corruption be cut off, and a large body of laborers be brought under humaner conditions of toil. It is to be understood that all nationalized and municipalized industries should be conducted at cost, for use and not for profit.

Until the present time, 1890, the movement throughout the United States has been guided from the parent club in Boston. Preliminary steps have been taken, however, for organization of a National League, with a settled policy for the whole country. It has been the especial aim of Nationalism to interest and attract the educated classes; and with these thus far it has had its chief success.

NATIONAL PARKS OF THE UNITED STATES: see YELLOWSTONE PARK: YOSEMITE.

NATIONAL POLITICAL CONVENTION: see CONVENTION, NATIONAL POLITICAL.

NATIONAL WOMAN'S CHRISTIAN TEMPERANCE UNION: see TEMPERANCE UNION, NATIONAL WOMAN'S CHRISTIAN.

NATIVE, a. *nā'tĭv* [L. *natīvŭs*, that has arisen from birth, born—from *nātus*, born: F. *natif* and *native*, native]: not acquired; produced by nature; belonging to the place or country; pertaining to the time or place of birth; applied to a metal or other substance when found in nature almost in a pure state as distinguished from the same substances procured from ores in which they exist variously combined, e.g., native silver, native copper, native arsenic, etc.: N. one born in a place; a thing not foreign; that which grows in the country; in *OE.*, offspring. NA'TIVELY, ad. *-lĭ*. NA'TIVENESS, n. *-nĕs*, state of being native. NATIVITY, n. *nă-tĭv'ĭ-tĭ*, birth; the time, place, or manner of a person's birth; among *astrologers*, a representation of the position of the heavenly bodies at the moment of one's birth, the result being supposed to indicate future destiny. THE NATIVITY, the birthday of our Lord; Christmas day. TO CAST ONE'S NATIVITY, to represent the position of the heavenly bodies at the moment of one's birth.—SYN. of 'native, a.': natal; natural; original; congenital; indigenous; unartificial.

NATKA, n. *năt'kă:* a bird, a species of shrike.

NATOLIA: see ANATOLIA.

NATRON, n. *nā'trŏn*, or TRONA [new L. *natrum;* F. *natron;* L. *nitrum;* Gr. *nitron;* Ar. *natrun*, natron]: an impure sesquicarbonate of soda, which always contains sulphate of soda and chloride of sodium: see SODA. It is obtained from the margins of lakes and from dried-up watercourses in Egypt, Hungary, Siberia, Tibet, etc., and from the borders of the Black and Caspian seas. Natron was one of the substances employed by the ancient Egyptians in embalming mummies, and it is mentioned in texts of the 12th dynasty, *circa* B.C. 1800. NATRIUM, n. *nā'trĭ-ŭm*, early chemical term for sodium. NATROLITE, n. *nā'trō-līt* [Eng. *natron*, and Gr. *lithos*, a stone]: a mineral, silicate of alumina and soda, found in many varieties of trap-rock. In the United States, it occurs in Cheshire, Conn.; at Copper Falls, Lake Superior; and at Bergen Hill, N. J. NATRON LAKES, lakes in Egypt, 8 in number, w. of the Damietta branch of the Nile. They are below the level of the sea, and the natron is obtained by evaporation. The locality is renowned for four monasteries, from whose libraries of Arabic, Coptic, and Syriac MSS. the national collections have been enriched. In the time of St. Pachomius, 5,000 anchorets dwelt here; they at present number about 300.

NATTERJACK, n. *năt'tĕr-jăk* [*natter*, an imitative word, and *jack*, which see]: a species of toad found in England having a yellow line on the back—its deep, hollow voice is heard to a great distance: see TOAD.

NATTY, a. *năt'ti* [from Eng. *neat*]: in *familiar language*, smart; spruce.

NATUNA ISLANDS, *nâ-tô'na*, THE: group of islands under Dutch protection, n.w. of Borneo, 4° n. lat., 108° e. long.; densely wooded and mountainous. The largest island is about 600 sq. m. The people grow rice, maize, sago, cocoa-nuts, etc., and exchange the produce of their fishings, their sago and cocoa-nut oil, for rice, iron, and cottons, at the European settlements on the Strait of Malacca. Total pop. about 1,300.

NATURAL BRIDGE, THE: rock and land formation in Rockbridge co., Va., affording natural passage for a public road across a chasm 215 ft. deep and 60 ft. wide. The rock is highly flinty limestone, in massive strata, showing no signs of wearing away, or of formation by any recent cutting force of water. The upper surface of soil and trees not only gives no sign to the passer of the immense gorge over which it leads, but the bridge is at the general level of a valley of the Blue Ridge region on one side, and conducts to a sightly hill on the other, from which a grand view of the mountains for a sweep of 90 m. can be had. Very remote geological action seems to have left both the gorge and the fragment of what may once have been a roof over an extensive cave. The sides of the chasm, at the bottom of which is the small stream, Cedar creek, are solid rock almost perpendicular. The view of the vast structure from below is of a grandeur exceeded by few places in America. It was discovered 1759; Washington visited it while surveying for Lord Fairfax; and 1774 George III. made a grant of it and 157 acres of adjoining land to Thomas Jefferson, who, when pres., established there a log-cabin in charge of a negro, 'Patrick Henry,' and wife, as a place of call for travellers. The valley near it now has hotels, affording a resort of great interest.

NATURAL HISTORY: in the widest sense, all natural science, having the whole of creation for its subject: in this sense the term was employed by the philosophers of antiquity. But it is now applied no longer in this widest sense, but limited to those branches of science which relate to the crust of the earth and its productions. Of these, geology and mineralogy have for their subject inorganic portions of creation; botany and zoology, the various branches of which are often pursued as separate sciences, with physiology, have for their subject organized creatures. N. H. takes cognizance of the productions of nature, and of their relations to each other, with all the changes on the face of the earth, and all the phenomena of life, both animal and vegetable. It derives assistance from other sciences, particularly chemistry and natural philosophy; and some of the branches of chemistry also may be regarded as branches of N. H. When man himself is considered as a subject of scientific study, psychology must be added to the branches of N. H., but in the term as commonly employed this can scarcely be said to be included. Indeed the term is now used frequently with a limitation of its subject to the animal kingdom.

In every department of N. H., classification is of utmost importance, and scarcely less important is a scientific nomenclature suited to the classification. The subjects of study are so incalculably numerous, that an arrangement of them in well-defined groups is necessary to any considerable attainment in the knowledge of them; and it is only by systems of classification which arrange smaller groups in larger, and these in larger and larger again, that N. H. has been brought to its present state. The very division of N. H. into different sciences is a result of such a classification, and implies a recognition of the largest and highest groups. It is not always in the establishment of these groups that the greatest difficulty is experienced. The primary distinction of all the subjects of N. H. into organized and unorganized, or into those having life and those not having life, presents itself readily to every mind. And equally natural and necessary is the distinction of organized beings into Plants and Animals, however difficult it has been found to draw the precise limit between the lowest of plants and the lowest of animals. Another distinction readily presents itself to the student of living beings, in the kinds which retain the same characters from one generation to another. But here arises one of the most important of all the questions of N. H.—what a *species* is, and how it differs from a *variety*. For this, see SPECIES. But much difference of opinion as there is on this point, the common and long-prevalent notion may be assumed, as sufficient for guidance in all that relates to classification, that those are distinct *species* which cannot by any change of circumstances —or, let it be said, by any *ordinary* change of circumstances, and within any *moderate* period of time—be so

modified as to be transmuted one into another; while those are only *varieties* of which the modification and transmutation can be thus effected. Thus, in botany, *Brassica oleracea* is a species, of which kale, cabbage, cauliflower, broccoli, Brussels sprouts, etc., are varieties. Species grouped together, according to their natural affinities, form *genera;* but a *genus* does not necessarily consist of more species than one; for, while some contain hundreds of species, others, apparently very distinct, contain only one yet known to naturalists. The distinctions by which genera are separated are of course arbitrary, and are admitted to be so by those who deny that the distinctions between species are arbitrary, or that there is any uncertainty about them but what arises from the imperfection of our knowledge; for at present it must be admitted on all hands, that the uncertainty is in innumerable instances very great, what are species and what are varieties. The great object, however, in the formation of *genera* is that they shall be accordant with the facts of nature; and so in regard to the larger or higher groups composed of associated genera, as tribes, families, orders, classes, etc. But in all this, the great difficulty is that affinities exist on many sides; and that groups cannot be satisfactorily arranged in the order of a series, but often rather as if they radiated from a common centre; while otherwise viewed, the same groups might seem to radiate very differently from another common centre. A *natural system* is one framed with the utmost possible regard to all these facts; an *artificial system* fixes on one class of facts and proceeds upon it, in disregard of all others. See BOTANY.—In the inorganic departments of nature, a *species* is of course something different from what it is in the organic. But classification still proceeds on the recognition of facts in nature itself, which it is sought to exhibit in the groups that are formed. See MINERALOGY.

The nomenclature of natural history, so far as it relates to organic beings, continues essentially as established by Linnæus: see GENUS. The names have in many cases been changed, but not the mode of nomenclature.

NATURALIZA'TION: act of placing an alien in the position, or investing him with the rights, of a natural-born citizen. In Britain, the present arrangements with reference to N.—by which the old rule that British allegiance is indelible has been changed—are embodied in the N. Act (1870) and the N. Oath Act (1870). By the former of these statutes it is provided that an alien who has resided in the United Kingdom for a term of not less than five years, or has been in the service of the crown for a term of not less than five years, and intends, when naturalized, either to reside in the United Kingdom or to serve under the crown, may apply to one of her majesty's principal secretaries of state for a certificate of N. The applicant is bound to adduce such evidence of his residence, or service, and intention to reside or serve, as shall satisfy the sec. of state, who may, with or without reason assigned, give or withhold a certificate. No appeal lies from his decision, but his certificate takes no effect until the applicant has taken the oath of allegiance. An alien, to whom a certificate of N. has been granted, is entitled to all political and other rights, powers, and privileges; and is subject to all obligations to which a natural-born subject is entitled or subject in the United Kingdom, with this qualification, that he, when within the limits of the foreign state of which he was previously a subject, is not deemed a British subject unless he has ceased to be a subject of the foreign state by the laws thereof, or by a treaty to that effect. Aliens previously naturalized may, on application, obtain certificates. A British subject who has become an alien, in pursuance of this act (see ALIEN), may apply for a certificate of readmission to British nationality on the same conditions as an alien by birth. The sec. of state has, in this case, the same discretion; and an oath of allegiance is likewise required. The privilege of readmission, like that of admission to British nationality, requires that the recipient shall have ceased to be a subject of the foreign state. In the colonies, the powers of the sec. of state are conferred on the governor.

In France, 'La grande Naturalisation' confers political privileges; 'La petite Naturalisation' gives all the private rights of a French citizen, and it has been doubted whether even public rights are not included in it. In 1867, the term of residence was reduced from ten years to three. A subject of France loses his native character by N. in a foreign country, or acceptance of office abroad without permission of the state, or even by establishing himself permanently out of his country. He may recover his rights by renunciation of his foreign office or domicile.

In Prussia, the higher administrative authorities can naturalize any stranger who satisfies them as to his conduct and means of subsistence. Nomination to a public office confers N. Prussian nationality is lost—(*a*) by discharge on the subject's request; (*b*) by sentence of the

competent authority; (*c*) by living ten years in a foreign country; (*d*) by marriage of a female subject with a foreigner.

In Austria, the authorities may confer the rights of citizenship on a person, after ten years' residence within the empire, who has been allowed to exercise a profession. A public functionary becomes thereby invested with rights of citizenship; but admission into the army has not this effect.—In the kingdom of the Netherlands, the power of naturalizing rests in the crown.—In Russia, N. is effected by taking an oath of allegiance to the emperor.

The general principle under which acts of N. fall in the United States, is that of welcoming all proper candidates for citizenship, without permitting improper intruders to enter to the peril of public interests. English traditions were those of exclusion of foreigners from all political privileges, and this English tradition naturally permitted some of the first New England colonists to indulge combined religious and social anxieties by restrictions on citizenship, which have been referred too much to religious rigor because they followed church lines. No such restriction ever existed in the Pilgrim or Plymouth colony, the basis of which was separation from a state-controlled church and entire liberality of all to each as well as liberty of all under the state. It was the general principle of the Plymouth colony to accord all rights and privileges to whomsoever carried himself with civility and humanity, irrespective of his nativity or religion. In the Puritan colonies, where none had had the Pilgrim thorough weaning from the traditions of English church and magistracy, the assumption naturally made and acted on was that of strict exclusion, and the advantage easily taken of this by the more rigid religious leaders resulted in notable political narrowness. Yet it was English even more than it was Puritan, and George III. acted on it in the obstructing of the paths to colonial citizenship which was one of the crimes laid to his charge by the Declaration of Independence. The colonial legislatures very early engaged in making these paths open and easy. Md. 1666 specially naturalized French Prot. refugees and the Dutch from Cape Henlopen, and later passed laws to promote the N. of aliens. Virginia began 1671, and passed several acts, till the time of the revolution, opening and securing citizenship to aliens. In 1683 N. Y. passed an act permitting all actually resident foreigners professing Christianity to become citizens on taking the oath of allegiance. In 1693 S. C. by special act made citizens of the French Protestants who had become settlers, and in 1696 passed a general act for the N. of aliens. By a special act, 1700, Del. took into full citizenship all Swedes, Dutch, and other aliens who had become settlers before the English gained possession, and authorized the gov. to receive into citizenship any alien settlers who would swear fidelity to the king and

the province. In the same year Penn. passed a N. law. In Mass. a chancery decree of *scire facias*, entered 1684, June 21, and confirmed Oct. 23, swept the Anglo-Puritan fences of the commonwealth entirely away, in the interest directly of the king's church, but with the ultimate result of a pattern of open liberty at Boston and Salem like that of the Mayflower Pilgrims of Plymouth. For the most part, in England, colonial liberality in making citizens was reprehended, as encroaching on either royal or parliamentary power over colonial development. An act of N. Y. 1715, naturalizing foreign Prot. inhabitants in a mass, was reported to the English board of trade by the king's atty.gen., Northey, as not allowable, though to special acts dealing with each individual by name there was no bar. This caused some 14 N. Y. acts to be passed before 1773, entering an immense number of names on the rolls of citizenship. In 1740 parliament sought to take the matter out of the hands of the colonies by an act equiring seven years' residence without an absence of over two months, and a taking of the Prot. sacrament by all except Quakers and Jews. The illiberality of the act defeated the design of parliament, the colonies steadily pressing on with liberal laws until the revolution cut them adrift from England. During the revolution, the several states separately exercised the power to admit aliens to state citizenship, and by the articles of confederation a very important step toward national unity was taken by a clause declaring that free citizenship in any state should secure the same in every state, a provision which would have made trouble if the doctrine of independent state sovereignties had not yielded to that of a national union, in the constitution of which all the states without question or debate gave to the nation the right to open or to shut the path to American citizenship. To open this path, at once widely and wisely, was a supreme ideal of Washington, impressed by him many times upon the army, the congress, and the people; and 1790, Mar. 26, at the second session of the first congress, an act of the most liberal character was passed, requiring only two years' residence in the country and one in the state for a free white alien to have the right to become a citizen. An act of 1795 required five years' American residence, and a period of three years after a declaration upon oath of intention. These periods were made 14 years and 5 years by an act of 1798, but reduced to 5 and 3 in 1802, and in 1824 made 5 and 2. The separate states, notably Va., sought to exercise concurrent jurisdiction, and even made conflicting laws, until the supreme court of the United States, 1817, ruled that the power to naturalize was vested exclusively in congress—a decision not acceptable at first, but ultimately recognized in all the states as a correct interpretation of the constitution. It is, however, the right and the practice of states, especially those of the new west, to grant state citizenship to many not yet enjoying U. S. rights. Under the revised

statute of 1874, the terms of N. are five years' residence in the United States, one in the state or terr., and due application to a proper court two years previous to admission. The last is dispensed with in the case of persons who came into the country under 18 years of age. An act of 1862 gave aliens of one year's residence the privilege of naturalization, if they had passed a term of honorable service in the army of the United States, regular or volunteer; and 1872 a similar act gave the privilege to any seaman who has made a proper declaration of intention and thereafter passed three years of good conduct in the merchant service of the United States. For a minor, the declaration of intention is not required. By an act of 1872, July 14, it is felony to obtain or knowingly to assist in obtaining a fraudulent N. The question of the citizenship of a child born out of the United States turns on the citizenship of the father at the date of the birth; and that of the citizenship of persons who were minors at the time of the father's N. has been repeatedly decided—by Chancellor Walworth (N. Y.) 1840, by Chief Justice Daly (N. Y.) 1847, by the supreme court of Ark. 1850, and by that of Fla. 1865—in accordance with the early view of Kent, in his *Commentaries*, that the child's citizenship arises with the father's. In the case of wives the courts repeatedly held that the husband's N. did not carry with it that of the wife, but an act of 1855, Feb. 10, provided that the two should be one in this respect, and no separate N. of the wife be required. In the case of an alien dying before carrying out a declared intention to be naturalized, the widow and children may become citizens by taking the oath of allegiance. This applies to adult as well as minor children. No alien of a country at war with the United States can be admitted to citizenship while the war lasts. The case of persons not 'free white,' as Indians, Chinese, and Africans, was decided in Cal. against the Chinese, and in the great Dred Scott case, 1856, against the Africans; but under special treaties—with the Choctaws 1830, Sep. 27; with the Cherokees 1836, May 23; and in the treaties under which La., Fla., and Cal. were acquired—Indians have been conceded the right to become citizens; and since the 14th amendment to the U. S. constitution was adopted, 1868, and an act of 1870, July 14, pursuant thereto, African aliens may be naturalized, and Africans not aliens enjoy the same rights as if white.

A treaty was concluded 1870, May 13, between the United States and Great Britain, according to the provisions of which citizens or subjects of either of these, naturalized as citizens or subjects of the other, shall be deemed to have put off their original nationality and put on that of their new residence; and in case of resumption of the old residence shall be allowed to drop the new nationality and resume the old. To the same general effect are the treaties with Prussia, made 1868, Feb. 22; with Bavaria, 1868, May 26; with Mexico, 1868, July 10; with Baden (grand duchy), 1868, July 19; with Würtemberg,

1868, July 27; with Hesse (grand duchy), 1868, Aug. 1; with Belgium, 1868, Nov. 16; with Sweden and Norway, 1869, May 26; with Austria-Hungary, 1870, Sep. 20; with Denmark 1872, July 20; with Ecuador, 1872, May 6.

NAT'URALIZED: term in botany and chemistry, for those plants and animals which, having been introduced into a country by man, have established themselves there so as to exist without his care. A plant or animal is never said to be naturalized so long as it exists merely in a state of cultivation or domestication, but is so when it becomes truly wild, and, unaided, competes successfully for a place among those which are indigenous to the country. Thus, the horse is not naturalized in Britain, or in most of the countries in which it is most highly valued; but both the horse and the ox may be said to be naturalized in S. America. Many of the plants now most characteristic of s. Europe are sometimes said to have been originally introduced from the East; and some that are abundant in many parts of Britain were in all probability brought from the continent of Europe. Some of these almost evince their foreign origin by growing chiefly near ruins, or in places which have long been the seats of human habitation. Many plants now naturalized in Britain appear to have been brought originally for medicinal use, though now disregarded. In many cases, however, naturalization has taken place without any attempt by man to introduce the plant even for cultivation; thus many European weeds are now common in N. America, the seeds having found their way thither with those of more valuable plants, or in some such accidental manner. The same thing has taken place as to animals. Thus, mice and rats find their way from one country to another; thus the bed-bug found its way at no remote date to Britain; other insects have been even more recently introduced with foreign productions of different kinds; and a mollusk (see DREISSENA), previously unknown, has established itself in some British rivers and canals. The pheasant is an instance of naturalization in Britain, designed and successfully accomplished by man. An *Acclimatization Society* has recently been formed in London, which has for its object the naturalizing, rather than what may more strictly be called the acclimatizing, of animals deemed suitable and desirable. It is unquestionable that much may be done by naturalization of animals, not only to render rural scenes more attractive, but also to increase their economical productiveness. For an important, but neglected, department of this subject, see PISCICULTURE.

NATURAL OBLIGATION, in Law: an obligation supposed to be prescribed by the law of nature, e.g., the obligation of a parent to maintain his child. In England, such an obligation is not recognized by the common law, and therefore it was necessary in the Poor-Law statutes to punish by a penalty parents who, being able, refused or declined to maintain their children. In Scotland, the natural obligation of a parent to maintain his child is recognized by the common law, though it is also enforced by the Poor-Law statute.

NATURAL THEOLOGY: branch of moral science which concerns itself with the evidences for the existence of God, drawn from an inquiry into the constitution of the universe. It is believed, by the majority of philosophical thinkers, that these evidences, even aside from a special historical revelation or manifestation of God, warrant the belief in a Being of infinite power, wisdom, benevolence, and justice. There are, however, philosophers of eminence who deny that there is such a thing as N. T., who say that nature, at the best, gives forth an uncertain sound regarding the existence of a Supreme Being, and that a logical demonstration of such existence is impossible, and has always broken down. This view is held, e.g., by atheists like David Hume, and the recent Scoto-Oxonian school of metaphysicians—a devoutly Christian school—of whom the principal representative is Dean Mansel. The standard English work on the subject has long been Paley's *Natural Theology* (Lond. 1802; new edition by Lord Brougham and Sir Charles Bell 1836). The Bridgewater and Burnett treatises also are contributions to this branch of science.

NATURE, n. *nā'tūr* or *-chûr* [F. *nature*—from L. *natūrā*, the natural constitution or property of a thing—from *nātus*, born, produced: It. *natura*]: the qualities or properties which make a thing what it is; native character; essential qualities; disposition of mind; the established order of created things; the power which has created and which presides over all things, being the *effect* put for, or associated with, the *cause;* natural affection or reverence; sort, species, or kind; sentiments or images conformable to truth and reality. NATURAL, a. *năt'ū-răl* or *năt'chû-răl*, produced or effected by nature; derived from nature; not acquired; not artificial; true to life; not forced or far-fetched; dictated by nature; happening in the ordinary course of things; not revealed, as religion: N. one born destitute of the ordinary powers of reason and understanding; an idiot. In *music*, a note belonging to the diatonic scale of C, and neither elevated by a sharp nor depressed by a flat. When a note has been so elevated or depressed, the natural sign ♮ prefixed to it on its recurrence restores it to its place on the scale. When music is written on a key with a signature of sharps or flats, it is the office of the natural sign to counteract the signature as regards the note to which it is prefixed. NAT'URALLY, ad. *-li*, according to nature;

without affectation; spontaneously. NAT'URALNESS, n. *-nĕs*, the state of being natural or as produced by nature; conformity to truth and reality. NAT'URALIZE, v. *-răl-īz*, to invest a foreigner with the rights and privileges of a citizen or subject; to acclimatize. NAT'URALIZING, imp. NAT'URALIZED, pp. *-īzd;* ADJ. invested with the privileges of a native; in *bot.* and *zool.*, originally introduced from a foreign country, but now apparently become native (see above). NAT'URALIZA'TION, n. *-ī-zā'shŭn*, the act of investing a foreigner with the rights and privileges of a native subject; the state of being so invested (see above). NAT'URALISM, n. *-īzm*, a mere state of nature: in *philos.* and *theol.* the doctrine of those who deny miracles and a revelation from God, accounting for all things that exist by the necessary action of forces without intelligence. Lucretius and Epicurus, with other of the anc. philosophers, held to naturalism: see MATERIALISM. NAT'URALIST, n. *-īst*, one versed in the natural history of animals. NATURAL CHILD, a child not born in wedlock; a bastard. NATURAL HISTORY, scientific description of the earth and its productions—often limited to the animal kingdom only (see above). NATURAL MAGIC, the employment of the powers of nature to produce effects apparently supernatural. NATURAL ORDERS, in *bot.*, groups of genera resembling each other, or having organs in common. NATURAL PHILOSOPHY, the science of material bodies in regard to rest and motion, and of the forces, or combinations of forces, which produce these results; branch of physical science which has for its subject those properties and phenomena of bodies which are unaccompanied by any essential change in the bodies themselves: now usually called 'Physics' (q.v.). NATURAL PROJECTIONS, perspective delineations of a surface on a given plane. NATURAL RELIGION, religion so far as it is discoverable by reason without the aid of what is called supernatural revelation. NATURAL SCALE, in *music*, a scale written without sharps or flats. NATURAL SELECTION, process ascribed to nature by which, as is asserted, the strongest, swiftest, etc., survive and take the place of the weaker, etc. (see DARWINIAN THEORY). GOOD-NATURED, having a temper not easily ruffled. ILL-NATURED, having a temper naturally bad. IN A STATE OF NATURE, naked as when born; without clothing of any kind.—SYN. of 'natural a.': inartificial; illegitimate; spontaneous; unacquired; unforced; unrevealed; tender; unaffected; native; essential; characteristic; legitimate; normal; regular;—of 'nature': kind; character; species; creation; universe; stamp; shape; mold.

NATURE-PRINTING: process by which engravings or plates answering thereto are produced by taking impressions of the objects themselves, and printing from them. There is some dispute as to the inventor of this art; Denmark claims it for a native of Copenhagen, Peter Kyle, a goldsmith, who died about 1833, leaving the MS. description of his invention in the archives of the Royal Collection of Engravings in that capital. It is, however, admitted that no use was made of his invention. In 1853, Alois Auer, director of the state printing establishment of the Austrian empire, published his process, and also some very beautiful works illustrated by this art. About the same time, in England, G. W. Aitkin made known his discovery of an exactly similar process, and showed some very beautiful plates of feathers, ferns, etc. But whatever other claims may be advanced, it is certain that Alois Auer has right to be called inventor and first practical applier of the invention. The process is very simple, as practiced by Auer; but it cannot be applied to any objects except those with tolerably flat surfaces, e.g., dried and pressed plants, embroidery and lace, and a very few animal productions. The object is placed between a plate of copper and another of lead, both worked smooth and polished; they are drawn through a pair of rollers, under considerable pressure—Auer says 40 to 50 tons; then, when the plates are separated, it is found that a most beautiful and perfect impression of the object has been made in the leaden plate. This may be used directly as an engraved plate, if only a very few impressions are wanted; but as it is too soft to resist the action of the press for practical purposes, a fac-simile of it by the electrotype process is obtained in copper and used as the printing-plate. The best practical use to which nature-printing has yet been applied is the multiplication of patterns of lace and other figured surfaces, either in textile materials or metals, for trade purposes. Lace-prints especially are so exactly like the originals, that the most fastidious can require nothing more; hence the cutting up of valuable pieces of lace for patterns has been saved. See Henry Bradbury's exquisite works, *Nature-printed Ferns* and *Nature-printed Sea-weeds*, two vols. each (London: Bradbury and Evans).

NAUGATUCK, *naw'ga-tŭk:* town in New Haven co., Conn.; on the Naugatuck river and the Naugatuck division of the New York New Haven and Hartford railroad; 5 m. s. of Waterbury, about 22 m. by railroad n.w. of New Haven. There are four churches, high school, national bank with $100,000 capital, savings bank, and two weekly newspapers. There are large manufactures of rubber clothing, boots and shoes, woolen underwear, buttons, cutlery, malleable iron goods, wagon wheels, and farming tools. Pop. (1870) 2,830; (1880) 4,274; (1890) about 5,000.

NAUGHT, or NOUGHT, a. *nawt* [AS. *na-wiht*, no-whit, naught—from *ná*, no, not; *wiht*, a whit, a thing]: bad; worthless: N. nothing. NAUGHTY, a. *nawt'ĭ*, bad; good for nothing; mischievous or perverse; applied to children in censure. NAUGHT'ILY, ad. *-ĭ-lĭ*. NAUGHT'INESS, n. *-ĭ-nĕs*, the quality of being naughty; slight misbehavior; badness. TO SET AT NAUGHT, to disregard; to treat as of no account; to despise.

NAUHEIM, *now'hīm:* town of Hesse-Darmstadt, Germany, 17 m. n. of Frankfort, with many saline and mineral springs, which have given occasion to the building of a handsome watering establishment. Salt-works have long existed, and in 1834 baths were opened. The mineral springs are much resorted to for drinking and for bathing for diseases of the bowels and cutaneous affections, in which their remedial efficacy is notable. Other mineral springs are near, and the waters are sent to all parts of Germany. A shock of earthquake 1846 opened a spring which yields about 75,000 quintals of salt per year, besides a supply of water for bathing.—Pop. of N. about 2,500.

NAUMACHY, n. *naw'mă-kĭ* [Gr. *naumachiă*, a sea-fight —from *naus*, a ship; *machē*, a fight]: in *anc. Rome*, a show or spectacle imitating a naval battle. Julius Cæsar was the first to introduce a N. into Rome, B.C. 46, causing a portion of the Campus Martius to be dug to form a lake, on which the 'spectacle' came off. Augustus made an artificial lake (*stagnum*) near the Tiber for the same purpose, which was afterward frequently used for such spectacles. Claudius also exhibited a splendid N. on Lake Fucinus. Nero, Domitian, and others were fond of the same amusement. The combatants were termed *Naumachariĭ;* they were mostly either captives or condemned criminals; and the rival fleets took their names from the famous maritime nations of antiquity: Tyrians and Egyptians, Rhodians and Sicilians, Persians and Athenians, Corcyræans and Corinthians, Athenians and Syracusans. The magnificence of these spectacles may be estimated from the fact that, in the one exhibited on Lake Fucinus, 19,000 men were engaged. These were not *sham-fights*, any more than were ordinary gladiatorial combats. Both sides fought on for dear life until one was utterly overpowered; and as a rule, multitudes were 'butchered to make a Roman holiday.'

NAUMANITE, n. *naw'măn-īt* [after Dr. *Naumann* of Saxony]: a peculiar ore of silver, found in cubical crystals, in thin plates, and granular.

NAUMBURG, *nowm'bûrĉh:* town of Prussian Saxony, in the govt. of Merseburg, 17 m. s.s.w. of the town of Merseburg, on the Saale, in the midst of a striking amphitheatre of vine-clad hills. Besides its cathedral—a noble Gothic structure, completed 1249, with two choirs, and containing many beautiful sculptures—there are several other churches. The manufactures are cotton and woolen fabrics, leather, and chemical products. Wine is grown in the vicinity in considerable quantity—11,000 gallons yearly. During the Thirty Years' War, and in the campaigns of 1806 and 13, N., in which the Prussian magazines were lodged, was a place of great importance. Five annual fairs are held here. Pop. (1880) 17,868.

NAUPAC'TUS: see LEPANTO.

NAUPLIA, *naw'plĭ-a:* small fortified town and seaport in the Morea, Greece, at the n. extremity of the Gulf of Argos or Nauplia, 7 m. s.e. of the town of Argos. It is laid out in the manner of a European town. Its roadstead is one of the best in Greece. In the Church of St. Spiridion, Capo d'Istria was assassinated 1831. N. is of high antiquity. At an early period it was the port and arsenal of Argos. In the 13th c., it was occupied by the Venetians, and was taken by the Turks 1540. It was cap. of Greece 1824–35, and had pop. of more than 12,000; but on the removal of the court to Athens, it fell into decay. Pop. (1879) 4,598.

NAUSCOPY, n. *naw'skŏp-ĭ* [Gr. *naus*, a ship; *skopĕō*, I view]: the pretended art of discovering approaching ships, or the existence of land, at a considerable distance.

NAUSEA, n. *naw'shĭ-ă* [L. *nausĕă;* Gr. *nausĭă*, seasickness—from Gr. *naus*, a ship: It. *nausea:* F. *nausée*]: a strong sensation of sickness inclining to vomit; loathing; disgust. N. is a distressing sensation always referred to the stomach: unattended by pain, but usually accompanied by a feeling of general languor or debility, a small and often irregular pulse, a pale, cool, and moist skin, general muscular relaxation, increased flow of saliva, and a sensation that vomiting will supervene. It is usually a *direct* symptom of disease or disorder of the stomach, but sometimes it is a very important *indirect* symptom of disease of some part at a distance from the stomach—as, for example, the brain or the kidney. The N. troublesome to pregnant women is due to the irritation excited by the enlarged uterus and reflected by nervous agency to the stomach. NAUSEATE, v. *naw'shĭ-āt* [L. *nausĕātus*, made sick]; to affect with disgust; to loathe; to turn away from with disgust; to feel disgust. NAU'SEATING, imp. NAU'SEATED, pp. NAUSEOUS, a. *naw'shĭ-ŭs* or *-shŭs* [L. *nausĕōsus*]; loathsome; disgusting; regarded with abhorrence. NAU'SEOUSLY, ad. *-lĭ.* NAU'SEOUSNESS, n. *-nĕs*, the quality of being nauseous.

NAUSHON, *naw-shŏn′*: one of the ELIZABETH ISLANDS (q.v.).

NAU′TÆ, CAUPO′NES, ETC. [L. mariners, innkeepers, etc.]: words forming the commencement of an edict in Roman law, which made shipmasters, innkeepers, and stablers liable for the safety of the goods brought in to the ship, inn, or stable. For the same doctrine in modern law, see CARRIERS: INN, in Law.

NAUTCH, a. *nawch* [Skr. *nach*, a dance]: in *India*, a dance: see NACH.

NAUTICAL, a. *naw′tĭ-kăl*, or NAUTIC, a. *naw′tĭk* [L. *nautĭcus*; Gr. *nautĭkos*, of or belonging to ships or sailors —from Gr. *naus*, a ship]: of or relating to ships or seamen; naval. NAU′TICALLY, ad. *-lĭ*. NAUTICAL ASTRONOMY, astronomy in its application to navigation. NAUTICAL SURVEYING (see HYDROGRAPHY).

NAU′TICAL ALMANAC: official publication by the Brit. govt. for special use of astronomers and navigators: see ALMANAC. It is valuable to navigators, for its tables of the 'lunar distances'—i.e., distances of the moon from a few (5 to 7) of the more prominent stars, given for every three hours throughout the year—by which, at the present day, longitudes (see LATITUDE AND LONGITUDE) are most conveniently and accurately determined. To the astronomer, the *Nautical Almanac* furnishes a great mass of important data; it gives the position of the moon in right ascension and declination for every hour, and the sun's latitude and longitude for every day in the year; it shows the obliquity of the ecliptic, the sun's and moon's parallax, aberration, etc., at different times; it supplies the necessary data for determination of the real or apparent size, position, and motion of the planets and their satellites; it fixes accurately the places of about 150 fixed stars, and gives full details concerning eclipses, occultations, transits, and other celestial phenomena during the year. It is generally issued four years in advance, for the use of mariners going on long voyages.—The U. S. govt. issues a similar publication.

NAUTILOID, n. *naw′tĭ-loyd* [Gr. *nautĭlos*, a nautilus; *eidos*, likeness]: a term applied to the fossil nautili that have many-chambered shells: **ADJ. resembling the shell of the nautilus in shape.**

NAUTILUS, n. *naw'tĭ-lŭs*, NAU'TILI, n. plu. *-tĭ'lī* [L. *nautĭlus;* Gr. *nautĭlos*, a shell-fish that was supposed to sail through the waves in its shell—from Gr. *naus*, a ship: It. *nautilo*: F. *nautile*]: popular name for a shell-fish having a boat-like shell in which it was supposed to sail on the surface of the sea. NAUTILIDÆ, n. plu. *naw'tĭ-lĭ'dē*, a family of mollusks of which the *nautilus* has been taken as the type. NAUTILITE, n. *naw'tĭ-līt*, a fossil nautilus. NAUTILITES, n. plu. *naw'tĭ-līts*, in *geol.* a general term for shells like the existing nautilus.—The Nautilus is a genus of *tetrabranchiate Cephalopoda* (q.v.), extremely interesting as the existing representatives of an order of mollusks now reduced to a very few species, but whose great abundance in former geological periods is attested by the fossil remains. The species of this genus are found only in the seas of warm climates. One or more of them must have been known to Aristotle, as appears from his description, which, however, is not minute. Yet it is but recently that they came under the observation of modern naturalists; and they were very imperfectly known, till a specimen, obtained by Dr. Bennett in a bay of the New Hebrides 1829, was submitted to the examination of Prof. Owen, and became the subject of a valuable memoir by him. The shell, indeed, has long been common in collections, being plentiful, entire or in fragments, on many tropical shores; but from the shell alone, little could be learned concerning the animal to which it belonged. The shell is spiral, the spire not at all elevated; and thus, in external form, resembles the shells of many species of snail; but internally, it is *camerated*, or divided into chambers, by transverse curved partitions of shelly matter. In a very young state, this structure does not exist; but as the animal increases in size, it deserts its first habitation, which then becomes an empty chamber, and so proceeds from one to another still larger, occupying the outermost only, but retaining a connection with all by means of a membranous tube (*siphuncle*) which passes through the centre of each partition. The use of this connection is not known; but the most probable supposition is, that the animal is enabled, by throwing air or some kind of gas into the empty chambers of the shell, or by exhausting them of air, to change the total weight, so that it may rise or sink at pleasure in the water. It commonly inhabits the bottom of the sea, where it creeps about, probably like the gasteropods, by means of a large muscular disk with which the head is furnished; but it sometimes rises to the surface, and is seen floating there. Dr. Bennett states that the specimen which he fortunately captured, attracted his attention when thus floating, as an object resembling a dead tortoise-shell cat. The story of its spreading a sail is as fabulous as the similar story regarding the argonaut. The head and arms can be protruded from the shell, and can also be completely retracted within it. There are numerous arms attached to the head, 19 in the best known species; there are also

numerous other tentacles; but none of these organs are furnished with suckers, and they are feeble in comparison with the corresponding organs of many of the higher or dibranchiate cephalopods. The mouth is of the parrot's bill form, as in the other cephalopods; but the mandibles are not composed entirely of horny matter, their extremities being calcareous and of a hardness apparently adapted for breaking shells. Their edges are also notched, and show an adaptation for crushing rather than for cutting. The tongue is large. The gizzard is muscular. The food appears to consist, at least in great part, of crustaceans. Only three species of N. are known, of which the best known and apparently the most abundant, is the PEARLY N. (*N. pompilius*), in the Indian and the Pacific oceans. Its shell is beautifully nacreous within; and is externally porcelain-like, white, and streaked with reddish chestnut. The shell, being large, thick, and strong, is used for a variety of purposes by the natives of the E. Indies and South Sea Islands; it is also made into ornaments of various kinds in China and elsewhere. The animal is much esteemed as food by the Fijians and other South Sea islanders. The Fijians capture it by means of a basket-trap, somewhat like those used for catching lobsters, baited with boiled cray-fish. The name PAPER N. has sometimes been given to the Argonaut (q.v.).

Fossil Nautilus.—About 150 species of fossil shells have been referred to this genus. They occur in all the strata from the Upper Silurian to the most recent deposits. Numerous forms, however, which exhibit very wide differences, have been incongruously associated under this generic name. The paleozoic nautili are so remarkable, that they must certainly by referred to one or more separate genera: some of the carboniferous species have a square back, and the whorls either compact or open in the centre, while the last chamber is more or less disunited from the shell; and the Devonian Clymenia has angular sutures and an internal siphuncle. Until a careful revision of this section of the Cephalopoda is made, it will be better to consider the species as belonging to the family *Nautilidæ*, and not to the genus *Nautilus*.

NAUTILUS PROPELLER: long the best known among many names given to a mode of propelling steam-vessels by means of a horizontal wheel within board, instead of a paddle or a screw on the outside, and by forcible expulsion of streams of water from within the vessel against the resistance of the water outside. *Hydraulic* propeller has latterly come more into use. Engineers thought of this mode of propulsion generations ago, and patents have been taken out for inventions relating to it; but the most successful attempts to realize it have been those of Ruthven, who constructed a small boat, 9 ft. long, 1839 (tried on a canal), and a vessel, 40 ft. long, 1844 (tried on the Forth), to test the principle; each was worked by a small steam-engine, and provided with the hydraulic apparatus. In 1849, he improved the apparatus, trying it in a vessel,

30 ft. long upon the Thames; 1851 he placed a boat in the great Exhibition. In 1853, a vessel on this principle, the *Albert*, was built in Prussia the machinery supplied by Ruthven. She plied on the Oder as a passenger-steamer for many years. He afterwards built a vessel called the *Nautilus;* and the Brit. admiralty authorized the commencement of the gun-vessel *Waterwitch*, both to be propelled on the Ruthven principle.

The *Nautilus*, a small vessel with 20 nominal horse-power, was first tried on the Thames 1866, April. Water is admitted through apertures in the bottom of the vessel into a water-tight iron case or compartment. In this case is placed a horizontal so-called turbine-wheel, 7 ft. in diameter, acted on from a vertical shaft connected with the steam-cylinders. The wheel is divided into compartments by plates or radii of peculiar curvature, and is placed below the water-line of the vessel, so as to be always immersed. Two pipes extend from the wheel-case, one to either side of the vessel, where they emerge nearly at midship. Each pipe terminates with nozzles, 10 inches in diameter, placed outside the vessel at right angles to the pipes; insomuch that each side of the vessel has a nozzle pointing ahead and another pointing astern. A valve is fitted to each pipe, at its junction with the nozzles, to open the passage to one nozzle and close it against the other; and the movement both of the starboard and the port valves can be governed from a raised deck built over the engine-house. The wheel-case is always full, or nearly full, of water, which enters through the apertures in the bottom of the vessel. When the wheel is made to rotate horizontally by the steam-engines, water is drawn in through the hollow axis, and expelled at the periphery by centrifugal force; it can find an outlet only through the two pipes, and then through the nozzles which terminate them. Supposing the nozzles pointing astern to be open, and those pointing ahead to be closed, the vessel is propelled forward by the resistance of the water of the river or sea to that rushing out of the nozzles; when the forward nozzles are open, and the hinder ones closed, the vessel is propelled backward, or driven astern; when one fore-nozzle is open and the other closed, the vessel turns. The exit of the water from the nozzles is a little above sea-level, a plan found to be better than actually immersing them.

The *Waterwitch*, iron-clad gun-vessel of 778 tons and 160 horse-power, flat-bottomed and double-ended, has a turbine wheel 14 ft. diameter, and cost £60,000.

The *Waterwitch* did not do all that was expected of her; she was neither more nor less successful than her sister ships, the *Viper* and *Vixen*, and all three belonged to the slowest class of gun-boats. As her machinery was much more expensive than that of the others, no more hydraulic engines have been added to the navy. They possess advantages in maneuvering the ship, but these are possessed also by twin-screw engines, which can be made at a less cost; while some of the advantages originally claimed for

them have not been realized in actual work. Possibly improvements in application of this principle may be developed, but the *Waterwitch* as well as her two non-hydraulic sister ships, now ranks among the 'inefficients' of the Brit. navy, having been pronounced useless for purposes of modern warfare.

NAUVOO, *naw-vō′*: town in Illinois, on the e. bank of the Mississippi river, 220 m. above St. Louis. It was built by the Mormons 1840, and 1846 had pop. 15,000. Its principal feature was a great temple of polished marble, original in style, and imposing in appearance. After the murder of Joseph Smith, the Mormon prophet (see MORMONS), and the expulsion of his followers, the temple was burned. The town was afterward bought and occupied by a French Socialist community, under the leadership of M. Cabet. This experiment having failed like others, the once famous city has been reduced to an inconsiderable village.

NAVAJOS, *nâ-vâ′ćhōs*: most northerly band of the great Shoshone and Apache family of Indians, occupying a reservation, in n.w. New Mexico and n.e. Arizona, of 6,120 sq. m. They are the most civilized of their stock, from long contact with the half-civilized Pueblo Indians of New Mexico, and from having early obtained horses, cattle, sheep, and goats, and learned to spin and weave cotton and wool. They numbered (1884) 17,200, and had 35,000 horses and 1,000,000 sheep and goats. They till much of their land, in rude fashion, and have a special manufacture of Navajo blankets, whose durability, warmth, and fine quality make them worth $50 to $100. Their houses are the unimproved conical structures of poles covered with boughs. Their long custom of war against the Mexicans, who were never able to reduce them, and several failures of U. S. expeditions against them (Doniphan's 1846, Wilkes's 1847, Newby's 1849, Washington's 1849, and Sumner's 1851) after pushing into the heart of their country, had made them difficult to deal with, until Col. Carson, 1863, by a winter campaign, drove them off to Bosque Redondo, on the Pecos river, where 7,000 of them were kept prisoners for several years at great expense. In 1868–9, Gen. Sherman and Col. Tappan effected a treaty under which they were returned to their old country with a reservation of 3,916,800 acres, where they are now peaceful and industrious.

NAVAL: see under NAVY.—SYN.: marine; maritime; nautical. NAVAL ARCHITECTURE: see SHIP-BUILDING. NAVAL SIGNALS: see SIGNALS. NAVAL TACTICS: see TACTICS, NAVAL.

NAVAL ACADEMY, UNITED STATES: see UNITED STATES NAVAL ACADEMY.

NA′VAL CADET′: youth training for service as naval officer (see CADET). Naval Cadets are nominated to the U. S. Naval Acad. at Annapolis, by the pres. and by members of congress; and these nominees, on passing examination, are admitted.

NAVAL CROWN, in Heraldry: rim of gold round which are placed alternately prows of galleys and square sails. The device is said to have originated with the Roman emperor Claudius, who, after the conquest of Britain, instituted it as a reward for maritime services. He who first boarded the enemy's ship, and was the occasion of its being captured, was entitled to a naval crown. A naval crown supporting the crest in place of a wreath occurs in various grants of arms in the early part of the 19th c. to the naval heroes of England in the then recent war.

Naval Crown.

NAVAL RESERVE, ROYAL: a sort of militia auxiliary to the British navy; considered an extremely valuable reserve of trained men, ready to man the fleet in case of emergency. The force was instituted 1859, under an act authorizing the engagement of 30,000 men, each for five years, and providing that each shall be trained, 28 days in every year, to the use of arms and naval tactics, either in her majesty's ships or on shore. The men are drilled under the officers of the coast-guard, near their own homes, and at seasons most convenient for them. In national emergency, these men can, by royal proclamation, be called out for service in the navy in any part of the world, for periods not exceeding five years. While training and while called out for actual service, the men receive the same wages as corresponding ratings in the royal navy: in addition, they each receive, as retaining fee, a sum of six pounds for every year in which the regulated training has been completed. While training or on duty, the men are liable to all the punishments, as they are entitled to all the rights and privileges, of regular seamen. In 1861, the system of the Reserve was extended to officers of the merchant-service, certificated masters and mates being respectively granted commissions in the Naval Reserve as lieutenants and sub-lieutenants, to the number respectively of 130 and 270.

The Royal N. R. now contains three classes of men, classified according to length and nature of sea-service. The third class comprises boys from 16 years upward who have had a certain amount of training and can show certain qualifications: these boys may be promoted to the second class at the age of 19 after 6 months' service at sea; and in due time to the first class. Every enrolment is for five years. In 1886 there were in all about 19,000 men in the Naval Reserve. Of other N. R. forces at command of the admiralty, the most important is the Coast Guard (q.v.); another is the Royal Naval Artillery Volunteers (see VOLUNTEERS); the third is a force drawn from among the seamen pensioners (see PENSIONS).

NAVAN, *nâv'an:* market town in Meath county, Ireland, at the junction of the Boyne and Blackwater, 28 m. n.w. of Dublin by rail. The town consists of three main streets, has a handsome Prot. church and a large Rom. Cath. church; a Rom. Cath. diocesan seminary, a barrack, court-house, infirmary, fever hospital, and workhouse. N. has also a large power-loom factory. Pop. (1881) 3,873, almost all Rom. Catholics.

NAVANAGAR': see NOWANUGGUR.

NAVARINO, *nâ-vâ-rē'nō* or NEO-CASTRO, *nā-ō-kâs'trō:* seaport and citadel on the s.w. coast of the Morea in Greece; pop. only 2,000. It has importance from its position, commanding the entrance of the Bay of Navarino, at whose s. extremity it is situated. On the island of Sphagia or Sphacteria, which closes the bay's mouth, formerly stood Pylus Messeniaca, the town of Nestor, where now stands Old Navarino or Palæocastron. The Bay of Navarino was the scene of a great sea-fight between the Athenians under Cleon, and the Spartans, (B.C. 425), in which the latter were defeated; and 1827, Oct. 20, it saw the annihilation of the Turkish and Egyptian navies by the combined British, French, and Russian fleets under Sir Edward Codrington.

NAVARRE, *na-vâr'*, or NAVARRA, *nâ-vâ'râ:* province, formerly a kingdom of Spain: bounded n. by France, s. and e. by Aragon, w. by the Biscays; 42° 20'—43° 15' n. lat., and 0° 50'—2° 30' w. long.; greatest length n. to s. abt. 90 m., greatest breadth e. to w. 86 m.; about 4,000 sq. m. Pop. (1877) 304,184. The country is mountainous, being bounded and traversed by the Pyrenees, spurs of which occupy almost all the n. and e. of the province. The highest peaks are Altovisear (5,380 ft.), Adi (5,220 ft.), Alcorrunz, and Ruña. N. is watered by the Bidassoa, the Anezo, and by the Ebro, together with its tributaries, the Ega and Aragon, on the level shores of which corn, wine, and oil of good quality are produced. Some of the valleys which intersect the mountain-ranges, as those of Roncesvalles, Lescon, Bastan, and Roncal, have a fruitful soil, and yield good crops; but in the mountain districts, husbandry is impracticable, and the inhabitants nearly all follow the chase, as much from necessity as inclination; and while a large number of the Navarrese are soldiers, a still larger proportion are smugglers—the proximity of the province to France, and the dangerous character of the almost inaccessible mountain passes which are the only connection between the two countries, holding out many inducements and facilities in the way of smuggling. The mountain forests still harbor bears, wolves, wild-cats, goats, deer, and an abundance of game of every other kind. Iron and salt are the chief mineral products of the district, but these are obtained in sufficient quantities to be exported. The people of N. are a hardy, brave, and hospitable race, loyal to the sovereign, attentive observers of the forms of their religion, and, except in the matter of smuggling, honest and moral; but they are passionate and distrustful,

prone to anger, and keen in avenging an insult, real or imaginary. Although not industrious, the people follow a few branches of industry, and manufacture glass, leather, soap, chocolate, etc., of good quality.

The Navarrese, with few exceptions, are members of the Church of Rome, to whose tenets they cling with superstitious devotion. They have always intermarried chiefly among their own compatriots, and are a nearly pure Basque race. In the mountainous districts, Basque is still spoken, but in the plains, the modern Castilian form of Spanish is rapidly supplanting the ancient language. The cap. and chief town is Pamplona (q.v.).

The territory known from an early period of Spanish history under the name N., was occupied in ancient times by the Vascones, who were subdued by the Goths in the 5th c. After having become gradually amalgamated with their conquerors, the people continued in a sort of turbulent independence under military leaders until the 8th c., when they were almost annihilated by the hordes of Arabs who were rapidly spreading their dominion to all parts of the peninsula. The Gothic Vascones of N., who had been converted to Christianity, offered gallant resistance to their Moslem invaders, and though repeatedly beaten, were not wholly subdued. The remnant which escaped the sword of the Moslem enemies took refuge in the fastnesses of the mountains, and choosing a knight of their number, Garcia Ximenes, as their leader or king, they sallied forth, and by their gallant resistance, compelled the Arabs to leave them in the enjoyment of an independence greater than that of the neighboring states. On the extinction of the race of Ximenes, in the middle of the 9th c., the Navarrese elected as their king Inigo Sanchez, Count of Bigorre, in whose family the succession remained till the marriage of Philip the Fair with Queen Joanna I. of N.; and the accession of the former to the throne of France, 1285, rendered N. an appanage of the crown of France. It continued a part of that kingdom during the successive reigns of Louis X., Philip V., and Charles the Fair; but on the death of the last, 1328, France fell to the family of Valois; and the daughter of Louis X., the rightful heir, succeeded to N. as Joanna II. The events of the kingdom present no features of interest during the next hundred years. The marriage of Blanche, daughter of Charles III. of N., with John II. of Aragon, 1442, did not produce an annexation of N. to Aragon, as John allowed his wife to rule her own kingdom as she pleased, and even after her death and his subsequent re-marriage, he resigned the govt. entirely to his son by Blanche. This son, known as Charles, Prince of Viano, having attempted to remained neutral in his father's quarrels with Castile, John expelled him and his elder sister Blanche, who sided with him, from N., and conferred the kingdom on Leonora Countess de Foix, his younger daughter, by Blanche, whose misrule completed the disorganization which these family quarrels had com-

menced. Her son, Francis, called Phœbus, from his beauty, succeeded 1479, and his sister Catherine 1483. Ferdinand and Isabella sought to marry the young queen to their son and heir, the Prince of Asturias, but her mother, a French princess, married her to Jean d'Albret. Ferdinand, however, was not willing to let the prize escape him, and on some slight pretext he seized N. 1512. After this act of spoliation, there remained nothing of ancient N. beyond a small territory on the n. side of the Pyrenees, subsequently united to the crown of France by Henri IV. of Bourbon, King of N., whose mother, Jeanne d'Albret, was granddaughter of Queen Catharine; hence the history of N. ends with his accession to the French throne 1589. The Navarrese were, however, permitted to retain many of their ancient privileges, after their incorporation with the other domains of the Spanish crown, until the reign of Queen Isabella II., when the active aid which they furnished to the pretender, Don Carlos, in the rebellion of 1834–39, led to the abrogation of their *fueros*, or national assemblies, and to the amalgamation of their nationality with that of the kingdom at large. In the later Carlist struggle of 1872–76, N. was again a principal seat of the war, the inhabitants being stimulated in their assistance of the representative of the claims and title of Don Carlos by his promise of restoring their *fueros*.

NAVE, n. *nāv* [Dut. *naaf;* Icel. *nöf*, the nave: Ger. *nabe* or *nabel;* Low Ger. *nave* or *navel*, the nave of a wheel: Ger. *nabel;* Dut. *navel;* Icel. *nabli;* Skr. *nabhi*, the navel; Fin. *napa*, navel, centre]: the centre part of a wheel in which the spokes are inserted, and through which the axle passes. NAVEL, n. *nā'vĕl* [dim. of Eng. *nave*]: the mark in the centre of the lower part of the abdomen, indicating the place of detachment of the umbilical cord after birth; the central part or point of anything. NAVEL-STRING, the umbilical cord.

NAVE, n. *nāv* [mid. L. *nāvis;* F. *nef*, the part of the church in which the laity were placed—from L. *nāvis*, a ship—so called from its vaulted or curved roof resembling the inverted hull of a ship]: the middle part or body of a church extending from the choir to the principal entrance; the part of a church between the wings or aisles: see CHURCH.

NAVEL: see under NAVE 1.

NAVESINK (often called NEVERSINK) HIGHLANDS: popular summer resort and important light-house station in Monmouth co., N. J., on the s. side of Sandy Hook Bay, 20 m. s. of New York. They comprise a range of hills, of which Mt. Michael (282 ft.) is the highest; and bear 2 first-class light-houses, 53 ft. high, 100 ft. apart, on ground 195 ft. above the sea, both showing fixed white lights. They afford a beautiful view of ocean and hills, contain 5 hotels and several summer boarding-houses, and are on the line of daily railroad and steam-boat travel from New York.

NAVEW, or NAPHEW, n. *nā'vū* [OF. *naveau;* F. *navet*, a turnip—from L. *napus*, a turnip: AS. *naepe*, a turnip]: garden vegetable much cultivated in France and other parts of the continent of Europe, often growing in cornfields, though little used in Britain. It is by some botanists regarded as a cultivated variety of *Brassica napus* or Rape (q.v.), while others refer it to *B. campestris*, sometimes called Wild N., the species which is supposed to be the original also of the Swedish Turnip (q.v.). The part used is the swollen root, somewhat like a carrot in shape. Its color is white. Its flavor is much stronger than that of the turnip. It thrives best in a dry light soil. The seed is sown in spring, and the plants thinned out to 5 inches apart.

NAVICULA, n. *nă-vĭk'ū-lă* [L. *navĭcŭla*, a little ship—from *nāvis*, a ship]: in *geol.*, a genus of microscopic diatoms—so called from their siliceous boat-like cases. NAVIC'ULAR, a.. *ū-lĕr*, pertaining to or like a boat.

NAVIC'ULAR DISEASE, in the Horse: strain of the strong flexor tendon of the foot, at the point within the hollow of the fetlock, where it passes over the navicular bone. It is most common among the lighter sorts of horses, especially where they have upright pasterns, out-turned toes, and early severe work on hard roads. It soon gives rise to a short tripping yet cautious gait, undue wear of the toe of the shoe, wasting of the muscles of the shoulder, and projecting or 'pointing' of the affected limb while standing. When early noticed, and in horses with well-formed legs, it is often curable; but when of several weeks' standing, it leads to so much inflammation and destruction of the tendon and adjoining parts, that soundness and fitness for fast work are again impossible. Rest should at once be given, the shoe removed, the toe shortened, and the foot placed in a large, soft, hot poultice, changed every few hours. Laxative medicine and bran mashes should be ordered, and a soft bed made with old short litter. After a few days, and when the heat and tenderness abate, cold applications should supersede the hot; and, after another week, a blister may be applied round the coronet, and the animal placed for two months in a good yard or in a grass field, if the ground be soft and moist; or, if sufficiently strong, at slow farm-work on soft land. Division of the nerve going to the foot removes sensation, and consequently lameness; thus it is useful in relieving animals intended for breeding purposes or for slow work. The operation, is not to be recommended where fast work is required; for the animal, insensible to pain, uses the limb as if nothing were amiss, and the disease becomes worse.

NA'VIES, ANCIENT AND MEDIÆVAL: assemblages (anciently) of *beaked* vessels to be driven against other vessels; or (later) of vessels employed to bring combatants into a hand-to-hand struggle. Hence skill and celerity in maneuvering, so as to strike the enemy at the greatest disadvantage, were of utmost importance; and the victory was usually with the best sailor. This mode

of conflict has been in part revived at the present time, and vessels called 'steam-rams' are specially constructed for this species of conflict. The earliest powers having efficient fleets appear to have been the Phœnicians, Carthaginians, Persians, and Greeks; the Greeks had fleets as early as the beginning of B.C. 7th c.—the first sea-fight on record being that between the Corinthians and their colonists of Corcyra, B.C. 664. The earliest great battle in which tactics appear to have distinctly been opposed to superior force, and with success, was that of Salamis B.C. 480, where Themistocles, taking advantage of the narrows, forced the Persian fleet of Xerxes to combat in such a manner, that their line of battle but little exceeded in length the line of the much inferior Athenian fleet. The Peloponnesian war, where 'Greek met Greek,' tended much to develop the art of naval warfare. But the destruction of the Athenian marine power in the Syracusan expedition of B.C. 414, left Carthage mistress of the Mediterranean. The Roman power, however, gradually asserted itself, and after two centuries, became omnipotent by the destruction of Carthage. For several following centuries, the only sea-fights were occasioned by the civil wars of the Romans. Toward the close of the empire, the system of fighting with pointed prows had been discontinued in favor of that which had always co-existed—viz., the running alongside, and boarding by armed men, with whom each vessel was overloaded. Onagers, ballistæ, etc., were ultimately carried in the ships, and used as artillery; but they were little relied on, and it was usual, after a discharge of arrows and javelins, to come to close quarters. A sea-fight was therefore a hand-to-hand struggle on a floating base, in which the vanquished were almost certainly drowned or slain.

The northern invaders of the empire, and subsequently the Moors, seem to have introduced swift-sailing galleys, warring in small squadrons and singly, and ravaging all civilized coasts for plunder and slaves. This—the break-up of the empire—was the era of piracy, when every nation, which had more to win than lose by freebooting, sent out its cruisers. Foremost for daring and seamanship were the Norsemen, who penetrated in every direction from the Bosporus to Newfoundland. Combination being the only security against these marauders, the mediæval navies gradually sprang up; the most conspicuous being—in the Mediterranean, those of Venice, Genoa, Pisa, Aragon; on the Atlantic sea-board, England and France. In the Mediterranean, Venice after a long struggle with the Genoese, and subsequently with the Turks, became the great naval power. The Aragonese fleet gradually developed into the Spanish navy, which, at the epoch of Columbus, had a rival in that of Portugal. Many struggles left, in the 16th and 17th c. the principal naval power in the hands of the English, French, Dutch, Spaniards, and Portuguese. For the present state of these and other existing navies, see NAVIES, MODERN.

NA'VIES, MODERN: national organizations of war-ships, dating from the 16th c. In 1588 we find the British navy rising from insignificance by the destruction of the Spanish Armada: a blow from which Spain never recovered, and which the Dutch, whose naval force had acquired tremendous strength in their struggle for independence, increased the weight of, by their triumph 1607, in the Bay of Gibraltar. At this time, there was no decisive superiority of the fleet of England over that of France; but each was inferior to the Dutch navy. The Commonwealth and the reign of Charles II. were signalized by the struggle for mastery between the English and Dutch; when victory, after many alternations, finally sided with the English. Through the 18th c., the English and French were the principal fleets; but Louis XVI. gave a decided superiority to the navy of France; and at the period of the American revolution, the naval power of England was seriously threatened. Spain, Holland, and Russia (now for the first time a naval power) had meanwhile acquired considerable fleets; and the 'armed neutrality,' to which the northern powers gave their adherence, rendered the British position most critical. However, the slowly roused energy of her government, the invincible courage of her seamen, and the genius of her admirals brought Britain through all her trials. Camperdown broke the Dutch power; many battles weakened the French navy; and at Trafalgar, 1805, it, with the Spanish power, was swept from the ocean. The United States had in the mean time augmented their fleet, and in the war of 1812–14 maintained a glorious struggle. During the American war of secession, many gun-boats, 'monitors,' and iron-clads of all classes were built; but chiefly adapted for river and coast service. Emperor Napoleon III. greatly enlarged and improved the French navy, yet in the war of 1870–1 it had no opportunity of proving its effectiveness.

The contest between the attack and defense which has been going on for some time appears to have attained its limits in the 100-ton guns of the Italian navy and the 24-inch armor-plate of the British; and a new departure seems already to have been taken which points in the direction of steel-plates and speed, and a more special adaptation of ships for particular services. The torpedo system has introduced a new element into naval warfare, particularly in harbors, rivers, and inland waters, which is not yet fully developed (see TORPEDO); and the catastrophes of the *Vanguard* of the British navy, and the *Grosser Kurfürst* of the German, have pointed out dangers connected with the ram system that had not been foreseen.

The following shows approximately the strength of the navies of the principal maritime nations 1890, July 1:

Austria-Hungary.—Armor-clad ships 12, guns 126; unarmored 17, guns 144; torpedo-boats 38; unarmored gun-boats 27, guns 69; unarmored cruisers 11; transports and tugs 26; dispatch vessels 2, guns 2; training

vessels 5, guns 21; total guns 362, of which 2 were 80-tons or over, 18 40–80-tons, 90 20–40-tons, 226 4–20-tons; 1 admiral, 2 vice-admirals, 6 rear-admirals, 16 capts. of ships of the line, 19 capts. of frigates, 22 capts. of corvettes, 150 lieutenants, 318 ensigns and cadets, 9,230 seamen on peace-footing, and 13,752, with additional officers, in times of war. Seamen are secured partly by a general levy on seafaring people and partly by voluntary enlistment, and service is for 10 years—3 active and 7 reserve.

Brazil.—Two-turret battle-ships 2; coast-guard monitors 2; coast-guard armored ships 4; river turret-monitors 3; 1st-class cruisers 2; 2d-class cruisers 2; 3d-class cruisers 4; river gun-boats 9; river and shallow-water gun-boats 8; 1 admiral, 12 rear-admirals, 20 capts., 20 commanders, 150 lieutenants, 180 sublieutenants and ensigns, 50 midshipmen, 230 engineers, 25 marine officers, 600 marine soldiers, 1,500 apprentices, 350 warrant officers, 3,200 seamen. 11 Yarrow, 3 Thornycroft, and 6 other torpedo-boats were building.

China.—Armor-clad ships 7, guns 62; unarmored 28, guns 92; torpedo-boats 7; barbette-ships 4; protected cruisers 4, partly protected 3, unprotected 6; unarmored gun-boats 38, guns 148; dispatch vessel 1, guns 4; total guns 306; 1st-class seagoing torpedo-boat 1; floating batteries 6; 1st-class torpedo-boats 21, 2d-class 9; torpedo cruisers 4. These vessels are of English, German, and native build, manned by natives, and commanded by foreign and native officers.

Denmark.—Armor-clad ships 7, guns 58; unarmored 6, guns 10; armored gun-boats 5, guns 15; unarmored 3, guns 4; protected cruisers 3; total guns 150, of which 30 were 40–80-tons, 64 20–40-tons, 41 4–20-tons; 1 vice-admiral, 2 rear-admirals, 15 commanders, 30 capts., 80 lieutenants, 1,500 seamen on peace-footing, and 4,500 in time of war. The navy is recruited by conscription from the coast population. A turret-ship of 3,290 tons and a cruiser of 1,280 tons were on the ways.

France.—Armor-clad ships 57, guns 673; unarmored 136, guns 832; torpedo catchers 19; torpedo-boats 126; armored gun-boats 11, guns 34; unarmored 47, guns 103; transports and tugs 49; dispatch vessels 33, guns 152; training vessels 16, guns 148; total guns 1,942, of which 16 were 80-tons or over, 47 40–80-tons, 330 20–40-tons, 950 4–20-tons; vice-admirals 15, rear-admirals 30, capts. of 1st-class vessels 100, capts. of 2d-class cruisers 200, lieutenants 700, ensigns 420, 'aspirants' (usually) 200. French men-of-war carry no marines, but a force of musketeers equal to one-fifth of the ship's company. Officers are drawn from the practice-ships, and seamen secured partly by conscription and partly by voluntary enlistment. The total active list (peace-footing) is 85,915; reserve (in time of war) 150,000. One 11,000-ton battle-ship, 7 armored coast-defenders, 1 armored cruiser, 17 protected cruisers, 2 torpedo cruisers, and several rapid torpedo gun-boats were on the ways.

Germany.—Armor-clad ships 18, guns 234; unarmored 35, guns 402; torpedo catchers 6; torpedo-boats 111; armored gun-boats 22, guns 29; unarmored 30, guns 82; transports and tugs 16; dispatch vessels 7, guns 24; training vessels 8, guns 60; total guns 831, of which 10 were 80-tons or over, 14 40–80-tons, 56 20–40-tons, 256 4–20-tons; officers of all grades 1,520, seamen 8,000, marine officers 196, marine soldiers 1,700; total active list 11,886, reserve 34,000. The officers of the navy are drawn from the cadets who have successfully completed the severe course of instruction provided by the admiralty board. Seamen are encouraged to become cadets. Naval instruction includes a large amount of training as infantry. The whole of the maritime population are absolved from land duties, but are liable to service in the navy. The liability lasts from the 17th to the 42d year, and of this time 12 years must be passed in the fleet and seawehr. Excluding fishermen, the seafaring population of Germany was estimated at 80,000. Four battle-ships, 8 protected cruisers of 4,400-tons and 10 of 3,400-tons, and 3 unprotected cruisers were on the ways.

Great Britain.—Armor-clad ships 76, guns 588; unarmored 119, guns 1,298; torpedo catchers 9; torpedo-boats 268; armored gun-boats 6, guns 20; unarmored 172, guns 428; transports and tugs 269; dispatch vessels 4, guns 8; training vessels 19, guns 192; total guns 2,537, of which 22 were 80-tons or over, 48 40–80-tons, 294 20–40-tons, 480 4–20-tons; officers of all grades 4,231, seamen 41,500, marine officers 360, marine soldiers 12,000; total active list 58,091, reserve 55,000. Eight battle-ships of 14,150-tons, 2 of 9,000-tons, 1 of 11,490, and 1 of 10,470; 2 protected cruisers of 9,000-tons, 9 of 7,300-tons, 29 of 3,400-tons, 9 of 2,600-tons, 2 of 1,800-tons, and 4 of 1,580-tons—nearly all with rapid-fire guns; a torpedo-depot ship; and 27 torpedo gun-boats of 740-tons and speed of 22 knots each—were on the ways and ordered. See BRITISH NAVY.

Greece.—Armor-clad ships 3—*Olga*, broadside battery, 2,060-tons, *King George*, central battery, 1,774-tons, and *Hydra* (launched 1889), 4,885-tons; and unprotected cruisers 3. Two battle-ships similar to the *Hydra* were on the ways.

Italy.—Armor-clad ships 19, guns 280; unarmored 41, guns 160; torpedo catchers 3; torpedo-boats 81; armored gun-boats 3, guns 12; unarmored 26, guns 110; transports and tugs 18; dispatch vessels 6, guns 32; training vessels 3, guns 72; total guns 666, of which 30 were 80-tons or over, 38 40–80-tons, 78 20–40-tons, 222 4–20-tons; officers of all grades 626, seamen 13,600, marine officers 90, marine soldiers 3,000; total active list 17,316, reserve 14,000. Italy set the example of great guns and heavily armored ships, and has 5 of the largest vessels in the world, all armed with 100-ton guns and having a displacement of 13,000-tons, with 2 others of 11,180 and 10,770 tons. The officers are drawn from the graduates of the Royal Naval School, and seamen are recruited by

conscription and voluntary enlistment, volunteers and boys trained in the various naval establishments being obliged to serve 8 years continuously. Two barbette battle-ships (13,250-tons), 4 protected cruisers of 3,750-tons, 4 of 2,020-tons, 7 torpedo cruisers, and 1 dispatch vessel were on the ways.

Japan.—Armor-clad ships 6; protected cruisers 2, unprotected 8. The modern navy of Japan dates from the purchase of the ex-confederate *Stonewall Jackson* from the U. S. govt. 1866. A large arsenal has been built since, at Yokoska, 10 m. below Yokohama, and nearly all the construction work is now done by natives. Two coast-defense vessels, 4 battle-ships, and 1 protected cruiser are building.

Netherlands.—Armor-clad ships 24, guns 78; unarmored 46, guns 164; torpedo gun-boats 50; armored gun-boats 6, guns 12; unarmored 24, guns 70; transports and tugs 29; dispatch boat 1, guns 4; training vessels 13, guns 78; total guns 406, of which 8 were 40–80-tons, 44 20–40-tons, 118 4–20-tons; 2 vice-admirals, 4 rear-admirals, 26 capts., 35 commanders, 315 1st and 2d lieutenants, 64 midshipmen, 7,545 seamen, 53 marine officers, 2,700 marine soldiers; total active list 11,172, reserve 3,400. Seamen and marines are recruited by enlistment, conscription being authorized, but not enforced.

Portugal.—Iron-clad 1, guns 5; corvettes 6, guns 85; steamers 4, guns 6; gun-boats 14, guns 53; torpedo-boats 5, guns 10; small screw-steamers 6; customs gun-boats 3; sailing vessels 4.

Russia.—Armor-clad ships 38, guns 142; unarmored 49, guns 314; torpedo-boats 141; armored gun-boats 11, guns 40; unarmored 70, guns 162; transports and tugs 3; dispatch vessels 9, guns 30; total guns 688, of which 8 were 80-tons or over, 22 40–80-tons, 46 20–40-tons, 250 4–20-tons; 31 admirals, vice-admirals, and rear-admirals, 411 capts., 931 lieutenants and midshipmen, 29,000 seamen, 780 marine officers, 4,300 marine soldiers; total active list 37,280, reserve 22,000. The officers are drawn from the graduates of the Imperial Naval School, and are all of noble or aristocratic families. The most powerful ships are the *Catherine II.*, *Tchesma*, and *Sinope*, each mounting 13 guns and having 10,180-tons displacement. Four battle-ships (2 of 11,000-tons), an armored cruiser (6,590-tons), and several torpedo gun-boats were on the ways.

Spain.—Armor-clad ships 12, guns 110; unarmored 78, guns 124; torpedo catchers 3; torpedo gun-boats 22; unarmored gun-boats 76, guns 113; transports and tugs 9; total guns 347, of which 22 were 40–80-tons, 86 20–40-tons, 214 4–20-tons; 1 admiral, 20 vice-admirals and rear-admirals, 650 commissioned officers, 17,000 seamen, 220 marine officers, 7,400 marine soldiers; total active list 26,910, reserve 6,700. Seamen are recruited by conscription from the various 'naval districts' along the coast. Six belted cruisers of 7,000-tons each, 2 protected crui-

sers of 5,000-tons each, and 1 partly protected cruiser of 1,030-tons were on the ways or ordered.

Turkey.—Armor-clad ships 15, guns 122; unarmored 49, guns 177; armored gun-boats 5, guns 10; unarmored 17, guns 29; transports and tugs 24; dispatch vessels 7, guns 28; total guns 366, of which 55 were 40–80-tons, 81 20–40-tons, 104 4–20-tons; 6 vice-admirals, 11 rear-admirals, 208 capts., 289 vice-capts., 228 lieutenants, 187 ensigns, 30,000 seamen, marine officers and soldiers 10,000; total active list 46,390. Seamen are recruited partly by conscription and partly by voluntary enlistment, and serve 12 years, 5 actively. There were no modern cruisers. One battle-ship of 8,600-tons, 2 protected cruisers of 2,500 each, and 1 cruiser of 960-tons were on the ways.

United States.—Serviceable: 1st-rate, unarmored, 4 protected, 1 partially protected, steel cruisers, guns 56; 2d-rate, armored, 1 cruiser, 1 battle-ship, guns 18; unarmored, 5 wooden cruisers, 1 protected and 2 partially protected cruisers, guns 90; 3d-rate, armored, 5 double-turret monitors, guns 20, 13 single-turret monitors, guns 26; unarmored, 23 steel, iron, and wood cruisers, guns 126; 4th-rate, armored, 1 torpedo-ram; unarmored, 1 dynamite, 1 steel, and 1 iron cruiser, guns 11, 1 dispatch vessel, 2 iron gun-boats, guns 11; tugs 12; sailing vessels 12, guns 76. *Unserviceable:* 3 receiving ships, 2 condemned vessels. There were 4 steel ships of 10,500-tons each, 2 of 10,000, 1 of 9,000, 1 of 7,600, 2 of 7,500, and 4 of 5,400; and 1 admiral, 6 rear-admirals, 10 commodores, 45 capts., 85 commanders, 74 lieut.-commanders, 250 lieutenants, 75 junior lieutenants, 180 ensigns, 7,500 seamen, 750 enlisted boys, 81 marine officers, 2,077 marine soldiers.

See further, BRITISH NAVY: UNITED STATES NAVY.

NAVIGABLE: see under NAVIGATE.

NAVIGATE, v. *năv'ĭ-gāt* [L. *navĭgātus* sailed upon—from L. *nāvis*, a ship: Gr. *naus;* It. *navigare;* OF. *naviger;* F. *naviguer*, to navigate]: to sail over or on, as a sea; to steer or manage a ship; to pass by water. NAV'IGATING, imp. NAV'IGATED, pp. NAV'IGATOR, n. *-tĕr*, a sailor; one skilled in navigation; sometimes applied to a laborer employed in constructing a railway, canal, or road: see NAVVY. NAV'IGA'TION, n. *-gā'shŭn* [F.—L.]: the art or science of conducting vessels from one place to another by water: see NAVIGATION, HISTORY OF: MERCHANT SHIPPING ACT: NAVIGATION LAWS: STEAM NAVIGATION. NAVIGABLE, a. *năv'ĭ-gă-bl* [F.—from L. *navĭga'bĭlis*—from *nāvis*, a ship]: that may be sailed on by ships. NAV'IGABLY, ad. *-gă-blĭ*. NAV'IGABLENESS, n. *-bl-nĕs*, or NAV'IGABIL'ITY, n. *-bĭl'ĭ-tĭ*, the quality or condition of being navigable.

NAVIGA'TION, HISTORY OF: divisible into three sections—history of the progressive improvement in the construction of ships, history of the growth of naval powers, and history of the gradual spread and increase of the science of navigation. Although these three sections are to some extent interwoven, the present consideration is limited to the last: for the first two see SHIP-BUILDING: NAVIES.

The first use of ships, as distinguished from boats, appears to have been by the early Egyptians, who are believed to have reached the w. coast of India, besides navigating the Mediterranean. Little, however, is known of their prowess on the waves; and, whatever it may have been, they were soon eclipsed by the citizens of Tyre, who, to make amends for the unproductiveness of their strip of territory, laid the seas under tribute, and made their city the great emporium of Eastern and European trade. They spread their merchant fleets throughout the Mediterranean, navigated King Solomon's squadrons to the Persian Gulf and Indian Ocean, and planted colonies everywhere. Principal among these colonies was Carthage, which soon outshone the parent state in maritime daring. The Carthaginian fleets passed the Pillars of Hercules, and, with no better guide than the stars, are believed to have spread n. to the British Isles, and s. for some distance along the w. coast of Africa. From B.C. 6th c. to B.C. 4th c. the Greek states gradually developed the art of navigation, and at the time of the Peloponnesian war, the Athenians appear to have been skilful tacticians, capable of concerted maneuvers. The Greeks, however, were warlike rather than commercial in their nautical affairs. In B.C. 4th c. Alexander destroyed the Tyrian power, transferring its commerce to Alexandria, which, having an admirable harbor, became the centre of trade for the ancient world, and far surpassed in the magnitude of its marine transactions any city which had yet existed. Rome next wrested from Carthage its naval power, and took its vast trade into

the hands of the Italian sailors. After the battle of Actium, Egypt became a Roman province, and Augustus was master of the enormous commerce both of the Roman and of the Alexandrian merchants. During all this period, the size of the vessels had been continually increasing, but probably the form was that of the galley, still common in the Mediterranean, though a more clumsy craft then than now. Sails were known, and some knowledge was evinced even of beating up against a foul wind; but oars were the great motive-power; speed was not thought of, a voyage from the Levant to Italy being the work of a season; and so little confidence had the sailors in their skill or in the stability of their ships (still steered by two oars projecting from the stern), that it was customary to haul the vessels up on shore when winter set in. During the empire, no great progress seems to have been made, except in size of vessels; but regular fleets were maintained, both in the Mediterranean and on the coast of Gaul, for protection of commerce. Meanwhile the barbarian nations of the north were advancing in quite a different school. The Saxon, Jutish, and Norse prows began to roam the ocean in every direction; in small vessels, they trusted more to the winds than to oars, and, sailing singly, gradually acquired that hardihood and daring which ultimately rendered them masters of the sea. The Britons were no mean seamen, and when Carausius assumed the purple in their island, he was able, for several years, by his fleets alone to maintain his independence against all the power of Rome.

The art of navigation became almost extinct in the Mediterranean with the fall of the empire; but the barbarous conquerors soon perceived its value, and revived its practice, adding new inventions. The islanders of Venice, the Genoese, and the Pisans, were the carriers of that great inland sea. Their merchants traded to the furthest Indies, and their markets became the exchanges for the produce of the world. Vast fleets of merchant galleys from these flourishing republics dared the storm, while their constant rivalries gave occasion for the growth of naval tactics. So rich a commerce tempted piracy, and the Moorish corsairs penetrated everywhere on both sides of the Straits of Gibraltar in quest of prey; evincing not less skill and nautical audacity than savage fury and inhuman cruelty. But the Atlantic powers, taught in stormy seas, were rearing a naval might that should outrival all other pretenders. The Norsemen extended their voyages to Iceland, Greenland, and Newfoundland, while they first ravaged and then colonized the coasts of Britain, France, and Sicily. The sea had no terrors for these hardy rovers; their exploits are imperishably recorded in the Icelandic Sagas, and in the numerous islands and promontories to which they have given names.

Early in the 15th c., the introduction of the mariner's compass rendered the seaman independent of sun and

stars—an incalculable gain, as was soon shown in the ocean-voyages of Columbus, Cabot, and others. In 1492, Columbus rendered navigation more secure by the discovery of the variation of the compass. Between that time and 1514, the 'cross-staff' began to be used; a rude instrument for ascertaining the angle between the moon and a fixed star, with the consequent longitude. Early in the 16th c., tables of declination and ascension became common. In 1537, Nuñez (Nonius), a Portuguese, invented various methods of computing the rhumb-lines and sailing on the great circle. In 1545, the first two treatises on systematic navigation appeared in Spain, one by Pedro de Medina, the other by Martin Cortes. These works were speedily translated into French, Dutch, English, etc., and for many years were the text-books of practical navigation. Toward the end of the century, Bourne in England, and Stevin in Holland, improved the astronomical portion of the art, while the introduction of time-pieces and the Log (q.v.) rendered the computation of distance more easy.

It would be tedious to enumerate the successive improvements by which the science of navigation has been brought to its present perfection; but as conspicuous points in the history of the art, the following stand out: The invention of Mercator's chart, 1569; the formation by Wright of tables of meridional parts, 1597; Davis's quadrant, about 1600; the application of logarithms to nautical calculations, 1620, by Edmund Gunter; the introduction of middle-latitude sailing, 1623; the measure of a degree on the meridian, by Richard Norwood, 1631. Hadley's quadrant, a century later, rendered observations easier and more accurate; while Harrison's chronometers (1764), rendered the computation of longitude a matter of comparatively small difficulty. Wright, Bond, and Norwood were the authors of scientific navigation, and their science is now made available in practice by means of the *Nautical Almanac*, published annually by the British admiralty, and through similar issues by other governments.—For the more important points of the science of navigation, see such titles as DEAD-RECKONING: LATITUDE AND LONGITUDE: GREAT-CIRCLE SAILING: SAILINGS: ETC.

NAVIGATION LAWS: set forth in the U. S. Revised Statutes (sections 4131–4680), and in the General Regulations promulgated by the sec. of the treasury under the laws of the United States.—By the law of nature and of nations, the navigation of the open sea is free to all the world. The open sea means all the main seas and oceans beyond three miles from land. The sea within three miles from land is called the territorial sea, and each state has a kind of property in such sea, and has a right to regulate the use thereof. (See INTERNATIONAL LAW). Hence, it was natural that in early times, before the laws of commerce were properly understood, each state should endeavor to exclude foreigners from that part of the sea so as to secure to its own subjects the benefits of the carriage of goods in ships, always a great source of wealth. In England, however, as in most countries, the first care seems to have been bestowed on the navy, as the great means of defending the realm against enemies, and trading-ships came to be subject to statutory regulation first only as being in some way ancillary to the interests of the navy. The laws of Oleron were the first code of maritime laws which obtained notice as well as general acceptance in Europe, in the time of Edward I., and the authorship of those laws is claimed by Selden and Blackstone for Edward I., though the point is disputed by the French writers. By a statute of Richard II., in order to augment the navy of England, it was ordained that none of the lieges should ship any merchandise out of the realm except in native ships, though the statute was soon varied and seldom followed. At length, 1650, an act was passed with a view to stop the gainful trade of the Dutch. It prohibited all ships of foreign nations from trading with any English plantation without a license from the council of state. In 1651, the prohibition was extended to the mother-country, and no goods were allowed to be imported into England or any of its dependencies in any other than English bottoms, or in the ships of that European nation of which the merchandise was the genuine growth or manufacture. At the Restoration, these enactments were repeated and continued by the Navigation Act (12 Char. II. c. 18), with the addition, that the master and three-fourths of the mariners should be British subjects. The object of this act was to encourage British shipping, and it was long believed wise and salutary. Adam Smith, however, was convinced that the act was not favorable to foreign commerce or to opulence, and it was on the ground only that defense was more important than opulence, that he said it was 'perhaps the wisest of all the commercial regulations of England.' In 1826, the statute 4 Geo. IV. c. 41 repealed the Navigation Act, and established a new system of regulations, which were varied by subsequent statutes, till, under the influence of the free-trade doctrines, new statutes were passed, reversing the ancient policy. By the law, as now altered, foreign vessels are allowed free commercial intercourse and equality with

the ships of Britain and its dependencies, except as regards the coasting-trade of the British possessions in Asia, Africa, and America; for the coasting-trade of the United Kingdom is now entirely thrown open to all comers. The advantages of equality and free trade are, however, so far qualified, that in the case of the ships of those nations which do not concede to British ships like privileges, prohibitions and restrictions may be imposed by order in council. As regards those laws of navigation which affect the property and management of ships, the complete code of regulations for Great Britain is contained in the Merchant Shipping Acts (q.v.).

The U. S. Navigation Laws treat of the following subjects: Title 48, Regulation of Commerce and Navigation; 49, of Vessels in Foreign Commerce; 50, of Vessels in Domestic Commerce; 51, of Fisheries; 52, of Steam Vessels; 53, Merchant Seamen; 54, Prize; 55, Lights and Buoys; 56, The Coast Survey.

These laws (see *U. S. Revised Statutes*, 2d ed. 1878) treat of registry and recording; clearance and entry; tonnage duties; discriminating duties; navigation (to prevent collisions); transportation of passengers and merchandise; log-books; piracy; trials for offenses against provisions to prevent collisions (sec. 4,131—4,305); vessels in foreign commerce (4,306–4,310); vessels in domestic commerce (4,311–4,390); fisheries (4,391–4,398); inspection 4,399–4,462); transportation of passengers and merchandise on steam vessels (4,463–4,500); shipping commissioners (4,501–4,508); shipment (4,509–4,523); wages and effects of seaman (4,524–4,548); discharge (4,549–4,553); protection and relief of seamen (4,554, 4,591); fees of shipping commissioners (4,592–4,595); offenses and punishments (4,596–4,612); regulations concerning prizes (4,613–4,652); lights and buoys (4,653–4,680); and the coast survey (4,681–4,691).

Vessels registered pursuant to law, and no others, except such as shall be duly qualified, according to law, for carrying on the coasting trade and fisheries, or one of them, are defined as vessels of the United States; but they shall possess the guaranteed rights and privileges only while they are wholly owned by citizens and are commanded by a citizen of the United States; officers of vessels of the United States must in all cases be citizens of the United States. Vessels built within the United States, and belonging wholly to citizens thereof, and vessels which may be captured in war by citizens of the United States, and lawfully condemned as prize, or which may be adjudged to be forfeited for a breach of the laws of the United States, being wholly owned by citizens, and no others, may be registered as U. S. vessels. The registered tonnage of every vessel built within the United States or by a citizen or citizens thereof shall be her entire internal cubical capacity in tons of 100 cubic ft. each. The master or person having the charge or command of any vessel bound to a foreign port, shall deliver to the collector of the district

from which such vessel is about to depart, a subscribed and sworn manifest of all the cargo on board the same; whereupon the collector shall grant a clearance for such vessel and her cargo. A departure without such clearance is punishable by a fine of $500 for each offense. Vessels entering the United States from any foreign port or place are obliged to pay duties ranging from 30 cts. to $2 per ton, besides a tax of 30 cts. per ton on all foreign vessels that may be entered at any U. S. custom-house. No tax or duty is levied on vessels belonging to citizens of the United States trading from one port to another within the United States, or employed in the bank, whale, or other fisheries, if licensed, registered, or enrolled. Pleasure yachts, entitled to be enrolled as U. S. vessels, may be licensed to proceed from port to port in the United States, and by sea to foreign ports, without entering and clearing at a custom-house; and yachts belonging to a regularly organized yacht club of any foreign nation which shall extend like privileges to the yachts of the United States, shall have the privilege of entering or leaving any port of the United States without entering or clearing at a custom-house, or paying tonnage-tax.

Every steam-vessel which is under sail, and not under steam, is defined as a sail vessel; and every steam-vessel under steam, whether under sail or not, as a steam-vessel. All ocean-going steamers, and steamers carrying sail, must display lights in all weathers, between sunset and sunrise, when under way; and sail-vessels, under way or being towed, shall carry the same lights as steam-vessels under way, excepting that they must never carry white mast-head lights. Different kinds and locations of lights are provided for various waters, kinds of steam or sail vessels, and employment. Whenever there is a fog or thick weather, whether by day or night, fog-signals must be made by steam vessels with steam whistles and by sailing-vessels with fog-horns, the former once a minute, the latter once every five minutes, when under way; and when not under way both kinds of vessels shall sound a bell at least every five minutes. Two steam or sail vessels meeting end on, or likely to do so, must avoid collision by putting both helms to port, so that each may pass on the port side of the other. When two sail or steam-vessels are crossing so as to involve risk of collision, the sail-vessel with the wind on the port side shall keep out of the way of the sail-vessel, with the wind on the starboard side (where the vessels have the wind on different sides), a free vessel must keep out of the way of a close-hauled vessel, and where both vessels have the wind on the same side, the windward vessel must keep out of the way of the leeward; and of two steam-vessels the one which has the other on her own starboard side must keep out of the way of the other.

Every vessel of the United States going to any foreign country, shall, before departure and at the request of

the commanding officer, be furnished by the collector of the vessel's district with a passport, provided a bond is filed that it shall not be applied to the use or protection of any other vessel; and a departure without such passport is punishable by a fine of $200 for each offense. Vessels of 20 tons and more enrolled and having a license in force, or vessels of less than 20 tons, which, though not enrolled, have such license, and no others, are defined as vessels of the United States entitled to the privileges of vessels employed in the coasting-trade or fisheries.—A seaman's right to wages and provisions begins either at the time he begins work, at the time specified for the beginning of his work, or at his presence on board ship, whichever first happens, and is independent of the earning of freight by the vessel. No wages due or accruing to any seaman shall be subject to attachment or arrestment from any court, and the wages due a seaman dying at sea shall be paid to the U. S. shipping commissioner at the first U. S. port reached, and his clothing and effects may be sold at mast-head auction. U. S. commissioners act as arbitrators between officers, owners, or consignees, and any member of their crews. Prizes are defined as all captures made by authority of the United States, or adopted and ratified by the pres. of the United States; and vessels of the navy, by whom alone prize captures are made, are defined as all armed vessels officered and manned by the United States, and under the control of the dept. of the navy.—Light-houses (q.v.), light-ships, and buoys are under control of a board, comprising two naval officers of high rank, two engineer officers of the army, two civilians of high scientific attainments, and an engineer officer of the army and a naval officer, who act as secretaries. All members of the board are appointed by the pres. of the United States, and are under immediate direction of the sec. of the treasury. See COAST AND GEODETIC SURVEY.

NAVIGA'TORS' ISLANDS, or SAMO'AN ISLANDS: see SAMOA.

NAVVY, n. *năv'vĭ* [the presence of *vv* in the spelling of this word may be accounted for were it derived from *nabbi* or *naabbi*, a word said to be of Danish origin, and signifying *neighbor:* Gael. *nabhaid*, neighbor]: the name applied to the workmen employed in constructing canals or navigations, railroads, etc. *Note.*—In the sense of *neighbor*, the word is said to have been in common use by men from the island of Skye who worked on the early railway and other great works; the word is generally, but perhaps incorrectly, said to be a corruption of *navigator*, a word alleged to have been first applied to the early excavators of canals. In the north of England a canal is called a *navy*, but this name doubtless arose from the popular name of the workmen employed at such undertakings, and not from a canal as a means of *navigation*.

NAVY, n. *nā'vĭ* [OF. *navie*, a fleet, originally a single ship—from L. *nāvis*, a ship: Gr. *naus*, a ship]: the whole of the ships of war belonging to a country; an assemblage of merchantmen; the whole officers and men serving in the war-ships of a country. NAVAL, a. *nā'văl* [F. *naval*, pertaining to a ship—from L. *navālis*, of or belonging to ships: It. *navale*]: pertaining to a navy; consisting of ships; maritime.—See NAVIES: BRITISH NAVY: UNITED STATES NAVY: UNITED STATES NAVAL ACADEMY: ADMIRAL: CAPTAIN: HALF-PAY: TURRET-SHIPS: ARMOR-PLATES: SHIP-BUILDING: SIGNALS: ETC.

NAWAB, n. *nă-wawb'*: in *India*, a deputy or viceroy; a title often given by courtesy to persons of high rank in the East.

NAY, ad. *nā* [for *ne aye*, being AS. *ne*, not, and Eng. *aye*, ever: Icel. *nei*, no: Goth. *niaiv*, never]: a word that expresses refusal; not; not only so; not this alone: N. a denial; a refusal. NAYWARD, n. *nā'wĕrd* [AS. *weardes*, direction]: in *OE.*, in the direction of a denial; tendency to denial. NAYWORD, n. *nā'wĕrd* [*nay*, and *word*]: in *OE.*, a by-word; a proverbial reproach; a watchword.

NAXOS, *năk'sŏs*: largest, most beautiful, and most fertile of the Cyclades; an island in the Ægean, midway between the coasts of Greece and Asia Minor; extreme length about 20 m.; breadth 15 m. The shores are steep, and the island is traversed by a ridge of mountains, which rise in the highest summit, Dia, above 3,000 ft. The plains and valleys are well watered; the principal products and articles of export are wine, corn, oil, cotton, fruits, and emery. The wine of N. (the best variety of which is still called in the islands of the Ægean, *Bacchus-wine*) was famous in ancient as it is in modern times, and on this account the island was celebrated in the legends of Dionysus, especially in those relating to Ariadne. Among its antiquities are a curious Hellenic tower, and an unfinished colossal figure, 34 ft. long, still lying in an ancient marble quarry in the north of the island, and always called by the natives a figure of Apollo. N. was ravaged by the Persians B.C. 490, and after the conquest of Constantinople by the Latins became the seat of a dukedom, founded by the Venetians. It now forms a portion of the kingdom of Greece (q.v.).—Naxos, the cap. (pop. about 5,000), is on the n.w. coast, contains 16 Greek, and 4 Catholic churches, and 3 convents, and is the seat of a Greek and a Latin bishop. Pop. about 19,000.

NAZARENE, n. *năz'ă-rēn* [from *Nazareth* in Galilee, the birth-place of Christ; (according to Hengstenberg and others) from Heb. *netser*, a shoot or sprout—referring to the luxuriant growth of vegetation near]: inhabitant of Nazareth. The term was applied by the Jews to Jesus Christ, and afterward became a common appellation of the early Christians in Judæa. Although, originally, it is but a local appellation, there can be no doubt that as Nazareth was but a second-rate city of the

despised province of Galilee, it was eventually applied to our Lord and his followers as a name of contempt (John xviii. 5, 7; Acts xxiv. 5). The apostles and the early Christians seem to have adopted the scornful term as a name of glory; and well might they do so if Jerome's view, adopted by many ancients and moderns, is correct—that Nazarene—the Man from Nazareth—is literally the title *Netser* (shoot or sprout from a root) which is given to the Messiah in the ancient prophets (comp. Is. xi. 1; Matt. ii. 23; and note the similar idea Jer. xxiii. 5; xxxiii. 15; Zech. iii. 8; vi, 12). In this view, whenever men, either in praise or in scorn applied this term to Christ, they uttered one of the long-predicted names of the Messiah.—Nazarene or Nazarean was the name also of a Judaizing sect in the early church—a party among the Ebionites (q.v.) NAZ'ARE'AN, a. *-rē'ăn*, pert. to the sect of Judaizing Jews. NAZAREANS (see CHRISTIANS OF ST. JOHN).

NAZARETH, *năz'a-rĕth:* small town or village of Palestine, anciently in the dist. of Galilee, and in the territory of the tribe of Zebulon, about 62 m. n. of Jerusalem, 18 m. w. of the lower end of the sea of Galilee, 21 m. s.e. of the Mediterranean Sea at Acre. It is on the s. slope of the hills which are the n. boundary of the great plain of Esdraelon, and is built partly on the sides of some rocky ridges, partly in some of the ravines by which they are seamed. It is celebrated as the scene of the Annunciation, and the place where the Lord Jesus spent the greater part of his life in obscure labor. In the earliest ages of Christianity, N. was quite overlooked by the church. It did not contain a single Christian resident before the time of Constantine, and the first Christian pilgrimage to it was in the 6th c. The principal building is the Latin convent, reared, according to pious tradition, on the spot where the angel announced to the Virgin the birth of her Savior-son; but the Greeks also have erected, in another part of N., a church on the scene of the Annunciation. Besides these rival edifices, the traveller is shown a Latin chapel, affirmed to be built over the 'workshop of Joseph;' also the chapel of 'the Table of Christ' (*Mensa Christi*), a vaulted chamber, containing the veritable table at which our Lord and his disciples used to eat; the synagogue, out of which he was thrust by his townsmen; and 'the Mount of Precipitation,' down which he narrowly escaped being cast headlong. The women of the village have long been noted for beauty. Pop., according to Dr. Robinson, 3,120, of whom 1,040 are Greeks, 520 Greek Catholics, 480 Latins, 400 Maronites, and 680 Mohammedans. (Porter thinks 4,000 a moderate estimate.)

NAZARITES, *năz'a-rīts* (properly NAZIRITES) [from Heb. *nazar*, to separate or consecrate one's self]: among the Jews, those persons, male or female, who had consecrated themselves to God by certain acts of abstinence, which 'separated' them from the rest of the community. In particular, they were prohibited from using wine or strong drink of any kind, and every product of the grape-vine, and from shaving their heads. The law in regard to N. is laid down in the Book of Numbers (vi. 1–21). The only examples of the class recorded in Scripture are Samson, Samuel, and John the Baptist, who were devoted from birth to that condition, though the law appears to contemplate temporary and voluntary, rather than perpetual Nazariteship. NAZARITISM, n. practice or doctrines of the Nazarites.

NAZE, n. *nāz* [F. *nez*; Ger. *nase*—from L. *nāsus*, nose]: a cliff or headland.

NE, ad. *nĕ* [AS. *ne* (see NAY and NOT)]: in *OE.*, not; nor.

NEAGH, LOUGH, *loċh nā*, locally *loċh nā'ȧċh:* largest lake of the British Islands; in the province of Ulster, Ireland; surrounded by the counties of Armagh, Tyrone, Londonderry, Antrim, and Down. It is 18 m. (English) in length, and 11 m. in breadth, covering 98,255 acres; 120 ft. in greatest depth, and 48 ft. above sea-level at low water. It receives the waters of numerous streams, of which the principal are the Upper Bann, the Blackwater, the Moyola, and the Main; and its surplus waters are carried off northward to the North Channel by the Lower Bann. Communication through canals subsists between the Lough and Belfast, Newry, and the Tyrone coal-field. In some portions of the Lough, the waters show remarkable petrifying qualities, and petrified wood found in its waters is manufactured into hones. The s. shores of the Lough are low and marshy, and dreary in appearance. It is well stocked with fish.

NEAL, v. *nēl:* sometimes used for ANNEAL, which see.

NEAL, *nēl*, DANIEL: English Congl. minister and author: 1678, Dec. 14—1743, Apr. 4; b. London. He was educated first at Merchant Taylors' School, and at a dissenting acad.; afterward at Utrecht and Leyden, in Holland; and 1706 succeeded Dr. Singleton as pastor of a congregation in London. N.'s first work was a *History of New England* (1720), which had very favorable reception in America. Two years afterward he published a tract, entitled *A Narrative of the Method and Success of Inoculating the Small-pox in New England by Mr. Benjamin Colman*, which excited considerable attention; but the production on which his reputation rests is *History of the Puritans* (4 vols. 1732–38), a work of great labor, and invaluable as a collection of facts and characteristics both to English churchmen and to dissenters. It involved its author in several controversies; but Neal's conscientious accuracy as to fact cannot be successfully impeached, though his strong prepossession in favor of the Puritans is quite evident. He died at Bath.

NEAL, JOHN: American author and poet: 1793, Aug. 25—1876, June 20; b. Falmouth, now Portland, Maine; of Scottish descent. His parents belonged to the Society of Friends, of which he was a member until disowned, at the age of 25, because he failed to live up to the rule of 'living peaceably with all men.' With the scanty education of a New England common school, he became a shop-boy at the age of 12; but learned and then taught penmanship and drawing. At the age of 21, he entered a haberdashery trade, first in Boston, and then in New York; and a year after, became a wholesale jobber in this business at Baltimore, in partnership with another American literary and pulpit celebrity, John Pierpont. They failed in 1816, and N. turned his attention to the study of law. With the energy which acquired for him the *sobriquet* of 'Jehu O'Cataract,' affixed to his poem, *The Battle of Niagara*, he went through the usual seven years' law-course in one, besides studying several languages, and writing for a subsistence. In 1817, he published *Keep Cool*, a novel; the next year, a volume of poems; in 1819, *Otho*, a five-act tragedy; and in 1823, four novels—*Seventy-six*, *Logan*, *Randolph*, and *Errata*. These impetuous works were each written in from twenty-seven to thirty-nine days. In 1824, he came to England, where he became a contributor to *Blackwood's* and other magazines and reviews, and enjoyed the friendship and hospitality of Jeremy Bentham. On his return to America, he settled in his native town, practiced law, wrote, edited newspapers, gave lectures, and occupied his leisure hours in teaching boxing, fencing, and gymnastics. Among his numerous works are *Brother Jonathan*, *Rachel Dyer*, *Bentham's Morals and Legislation*, *Authorship*, *Down-Easters*, etc. After a long silence, devoted to professional business, he published, in 1854, *One Word More;* and in 1859, *True Womanhood*. The latter work, though a novel, embodies the more serious religious convictions of his later years. In 1869 appeared his *Wandering Recollections of a Somewhat Busy Life;* and in 1874, *Portland Illustrated*. He died at Portland.

NEALE, *nēl*, JOHN MASON, D.D.: 1818, Jan. 24—1866, Aug. 6; b. London. He graduated from Trinity College, Cambridge, 1840, after having taken the members' prize 1838. In 1842 he took orders in the Anglican Church, and became incumbent of Crawley, Sussex. In 1846 he was appointed warden of Sackville College, East Grinstead. 1845–61 he took the Seatonian prize at Cambridge, for the best sacred poem, no less than 11 times. He was a zealous adherent of the ritualistic party in the church, many of his writings bearing on the subject of ritual and liturgy. In 1855 he founded, at East Grinstead, the Anglican sisterhood of St. Margaret. His writings were voluminous, no less than 70 vols. coming from his pen, mostly on ecclesiastical subjects. He issued also a revised edition, for children, of Bunyan's *Pilgrim's Progress*, his notes to which were occasion of consider-

able controversy at the time. Some of the more important of his publications were: *The History of the Holy Eastern Church, the Patriarchate of Alexandria* (2 vols. 1850–1); *Mediæval Preachers and Mediæval Preaching* (1857); *History of the so-called Jansenist Church of Holland* (1858); *Commentary on the Psalms* (1860); *Hymni Ecclesiæ* (new ed. 1865); *Essays on Liturgiology and Church History* (1863); *The Liturgies, in Greek, of St. Mark, St. James, St. Clement, St. Chrysostom, and St. Basil* (1868); *Hymns of the Eastern Church, with Notes and Introduction* (1871); *Mediæval Hymns from the Latin*, etc. He died at East Grinstead.

NEANDER, *nē-ăn'dėr*, Ger. *nā-ân'dėr*, JOHANN AUGUST WILHELM: 1789, Jan. 17—1850, July 14; b. Göttingen; of Jewish parentage: greatest of ecclesiastical historians. His name prior to baptism was David Mendel. By the mother's side, he was related to the eminent philosopher and philanthropist Mendelssohn (q.v.). He received his early education at the Johanneum or grammar school in Hamburg; and had for companions, Varnhagen von Ense, Chamisso the poet, Wilhelm Neumann, Noodt, and Sieveking. Here N.'s companions and teachers soon felt that a certain oddity of appearance and manner concealed a singular spiritual beauty and a surprising mental power. Already the abstract, lofty, and pure genius of N. was beginning to show itself. Plato and Plutarch were his favorite classics as a boy; and he was profoundly stirred by Schleiermacher's famous *Discourses on Religion* (1799). Finally, 1806, he publicly renounced Judaism, and was baptized, adopting, in allusion to the religious change which he had experienced, the name of N. (Gr. *neos*, new; *aner*, a man), and taking his Christian names from several of his friends. His sisters and brothers, and later his mother, followed his example. He now proceeded to Halle, where he studied theology with wonderful ardor and success under Schleiermacher, and concluded his academic course at his native town of Göttingen, where Planck was then in the zenith of his reputation as a church historian. In 1811, he took up his residence at Heidelberg Univ. as a privat-docent; 1812, he was appointed there extraordinary prof. of theology; and in the following year was called to the newly established Univ. of Berlin as prof. of church history. Here he labored till his death. N. had immense celebrity as a lecturer. Students flocked to him not only from all parts of Germany, but from the most distant Prot. countries. Many Rom. Catholics, even, were among his auditors, and it is said that there is hardly a great preacher in Germany who is not more or less penetrated with his ideas. His character, religiously considered, is of so noble a Christian type, and was in such a degree the source of his intellectual activity, that it calls for special notice. Ardently and profoundly devotional, sympathetic, glad-hearted, profusely benevolent, and without a shadow of selfishness resting on his soul, he inspired universal reverence, and was himself, by the

mild and attractive sanctity of his life, a more powerful argument for Christianity than even his writings themselves. Perhaps no professor was ever so much loved by his students as Neander. He used to give the poorer ones tickets to his lectures, and to supply them with clothes and money. The greater portion of what he made by his books he bestowed on missionary, Bible, and other societies, and on hospitals. As a Christian scholar and thinker, he ranks among the first names in modern times, and is believed to have contributed more than any other single individual to the overthrow, on the one side, of that anti-historical Rationalism, and, on the other, of that dead Lutheran formalism, from both of which the religious life of Germany had so long suffered. To the delineation of the development of historical Christianity, he brings one of the broadest, one of the most sagacious (in religious matters), one of the most impartial yet generous and sympathetic, intellects. His conception of church history as the record and portraiture of all forms of Christian thought and life, and the skill with which, by means of his sympathy with all of these, and his extraordinary erudition, he elicits, in his *Kirchengeschichte*, the varied phenomena of a strictly Christian nature, have placed him far above any of his predecessors. Though his style lacks certain elements of attractiveness—not being graphic or pictorial—his writings are quickening with spiritual insight, rich in the profoundest philosophy, and gifted with that deep vision which comes by the widest sympathy. N.'s works, in the order of time, are: *Ueber den Kaiser Julianus und sein Zeitalter* (Leip. 1812); *Der Heil. Bernhard und sein Zeitalter* (Berl. 1813); *Genetische Entwickelung der vornehmsten Gnostischen Systeme* (Berl. 1818); *Der Heil. Chrysostomus und die Kirche, besonders des Orients, in dessen Zeitalter* (2 vols. Berl. 1821–2; 3d ed. 1849); *Denkwürdigkeiten aus der Geschichte des Christenthums und des Christlichen Lebens* (3 vols. Berl. 1822; 3d ed. 1845–6); *Antignosticus, Geist des Tertullianus und Einleitung in dessen Schriften* (Berl. 1826); *Allgemeine Geschichte der Christlichen Religion und Kirche* (6 vols. Hamb. 1825–52); *Geschichte der Pflanzung und Leitung der Kirche durch die Apostel* (2 vols. Hamb. 1832–3; 4th ed. 1847); *Das Leben Jesu Christi in seinem geschichtlichen Zusammenhange*, written as a reply to Strauss's work (Hamb. 1837; 5th ed. 1853); *Wissenschaftliche Abhandlungen*, published by Jacobi (Berl. 1851); *Geschichte der Christlichen Dogmen*, also published by Jacobi (1856). The majority of these works, including the most important, have been translated into English, and form more than a dozen volumes of Bohn's 'Standard Library.'

NEAP, a. *nēp* [Icel. *neppr*, narrow, contracted: Dan. *neppe*, scarcely; *knap*, scanty]: scanty; deficient; low; applied to the tides which occur about the first and last quarters of the moon, and which are called *neap-tides;* the *spring-tides* are the highest tides (see TIDES). NEAPED, a. *nēpt*, left aground by the tides, as a ship; also BE-NEAPED, a. *bĕ-nēpt'*.

NEAPOLITAN, a. *nē′ă-pŏl′ĭ-tăn :* of or relating to Naples: N. an inhabitant of Naples.

NEAR, a. *nēr* [Goth. *nehv*, nigh: AS. *neah*, nigh; *near*, nearer: Icel. *na*, *nærri*, *nærstr*, near, nearer, nearest]: not far distant; intimate; closely related by blood or affection; literal; not loose or rambling; direct; short, as a road to a place; next to one; parsimonious; on the left; opposed to *off* in riding or driving: AD. almost; within a little: PREP. at no great distance from; close to, followed by *to*, expressed or understood, as, the ship is *near* the harbor: V. to approach; to come nearer; to draw near. NEAR′ING, imp. NEARED, pp. *nērd.* Compar. NEAR′ER, a. *-ĕr*, more near. Superl. NEAR′EST, a. *-ĕst*, most near. NEAR′LY, ad. *-lĭ*, closely; at no great distance; almost; within a little. NEAR′NESS, n. *-nĕs*, small distance; closeness; close alliance by blood; closeness in expenditure. NEAR AT HAND, or NEAR HAND, not far distant; closely. NEAR-SIGHTED, a. seeing at a small distance only. NEAR-SIGHTEDNESS, n. the state of being short-sighted. FAR AND NEAR, distant and at hand. *Note.*—It will be observed that NEAR is really the comparative of NIGH.—SYN. of 'near, a.': nigh; close; proximate; direct; straight; adjacent; contiguous; familiar; dear; intimate; ready; present.

NEAR, n. *nēr* [Ger. *nier′ĕ*, a kidney; *nier′ĕnfett*, suet]: in *OE.*, a kidney. NEAR-FAT, *prov. Eng.*, the fat about the kidneys; suet.

NEARCHUS, *nē-âr′kŭs :* commander of the fleet of Alexander the Great in his Indian expedition (B.C. 327–326): b. in Crete; son of Androtinus, a distinguished officer in Alexander's army. He settled in Amphipolis, and B.C. 329 he joined Alexander in Bactria with a body of Greek mercenaries, and when the latter ordered a fleet to be built on the Hydaspes, N. received the command of it. He conducted it from the mouth of the Indus to the Persian Gulf, in spite of great obstacles, resulting partly from the weather and partly from the mutinous disposition of his crews. N. left the Indus 325, Sep. 21, and arrived at Susa, in Persia, 324, Feb., shortly after Alexander himself, who had marched overland. Fragments of his own narrative of his voyage have been preserved in the *Indica* of Arrian.—See Dr. Vincent's *Commerce and Navigation of the Ancients in the Indian Seas* (1807); Geier's *Alexandri Magni Historiarum Scriptores;* and histories of Greece by Grote and others.

NEAT, a. *nēt* [F. *net*, neat—from L. *nitĭdus*, clean, trim—from *nitĕō*, I shine: Gael. *nigh;* Skr. *nig*, to cleanse]: tidy; spruce and clean; not tawdry; trim; pleasing with simplicity; pure; unadulterated. NEATLY, ad. *nēt′lĭ*, tidily; with good taste; cleverly. NEAT′NESS, n. *-nĕs*, the condition or quality of being neat; good taste in style of dress or literary composition. NEAT-HANDED, clever and tidy; finished; exact.—SYN. of 'neat': spruce; clean; cleanly; nice; excellent; unmixed; net.

NEAT, n. *nēt* [Icel. *naut*, an ox, cattle: AS. *nyten*, cattle in general—from *neotan*, to employ (see NOWT)]: cattle, as the ox, the cow, etc. NEAT-HERD, a cow-keeper; a herdsman. NEAT'S-FOOT OIL, oil procured from the fat of cattle by boiling, used to render leather pliable.

NEATH, *nēth:* parliamentary and municipal borough and river-port of the county of Glamorgan, s. Wales, on the navigable river N., seven m. n.e. of Swansea. It is on the site of the Roman station *Nidum*, and contains the remains of an ancient castle, burned 1231. In the immediate vicinity are the imposing ruins of Neath Abbey, described by Leland as 'the fairest abbey in all Wales,' but now sadly decayed and begrimed by smoke and coal-dust. There are at N. several very extensive tin-plate and copper works. Copper, spelter, iron and tin plates, and fine bricks are largely exported, stones are quarried, and coal and culm are mined. The trade of the port has greatly increased within late years. Pop. (1881) 10,447.

NEB, n. *nĕb* [AS. *neb*, a beak, nose, face: Icel. *nebbi;* Dut. *nebbe*, the beak of a bird: Scot. *neb*, any sharp point]: the beak of a bird; the nose; the snout; the mouth; a nib.

NEB-NEB, *nĕb'nĕb*, or NIB-NIB, *nĭb'nĭb:* dried pods of *Acacia Nilotica*, one of the species of Acacia (q.v.), which yield gum arabic. This species is a native of Africa, and the pods are much used in Egypt for tanning, and have been exported to Britain.

NEBO, *nē'bō:* one of the five planetary gods of the religion common to the Chaldæans, Babylonians, and Assyrians. His star was Mercury, and he was accounted son of Hoa, a Chaldæan Poseidon or Neptune, god of 'the great deep' (not the sea), and of science and knowledge taught to man. The symbol, both of Hoa and of N., is the wedge or arrow-head, which represents writing and literature. In the greatest of Nebo-worship temples, that of Borsippa, his special Babylonian seat, there was an oratory or chapel, every brick of whose walls bears the arrow-head stamp. He was mythologically, in the common religion, of little account; but rose very high in later times in Babylonia, as the presiding deity of the magnificent kings who gathered libraries and had pride in knowledge, and most of whose names contained the name of Nebo. The great Borsippa temple of N., now *Birs Nimrúd*, was known as *Bit-Tsida*, a designation from very early Chaldæan times, the meaning of which was probably unknown even to the Babylonians. The name, *Nabiu* in Babylonian and *Nabu* in Assyrian, is assigned to the Semitic root *nibbah*, 'to prophesy,' and N. was designated 'the god who possesses intelligence,' 'he who instructs.' Statues representing him, one, a statue set up by Pul, of Assyria, at Calah (*Nimrúd*), one of the shrines of N.—are now in the British Museum. Nebuchadnezzar rebuilt the Borsippa temple, and the worship lasted till more than 300 years after Christ.

NEBRASKA, *nē-brăs'ka:* state; one of the United States of America; 37th in order of admission into the Union, 8th (1880) in corn and barley, 9th in rye, 24th in agriculture, 30th in population, 33d in manufactures; named from the Nebraska river, meaning 'shallow water.'

Location and Area.—N. is in lat. 40°—43° n., long. 95° 23′—104° w.; bounded n. by S. D., e. by Io. and Mo.; s. by Kan. and Colo., w. by Wyo. and Colo.; extreme length e. to w. 412 m., greatest breadth n. to s. 208 m.; 76,855 sq. m. (49,187,200 acres); cap. Lincoln.

Topography.—The state is almost wholly a rolling prairie, trending toward the e., with hills of considerable height in the 'Bad Lands' of the n.w., high bluffs along the rivers, and ample and even drainage in the e. Numerous small bodies of water are found, but none deserving the name of lakes. The chief drainage is by the Missouri river, which forms the entire e. boundary, and its affluents, the Niobrara, Nebraska or Platte, Great and Little Nemahas, and Weeping Water. The south is drained by the Republican fork of the Kansas river; and the Big Blue, another large tributary of the Kansas, also waters large s. and s.e. tracts. The Nebraska traverses the state from w. to e., and the Niobrara extends nearly the same distance and in the same direction. Excepting the Missouri, the rivers of N. are of little value for navigation. The soil, containing a siliceous marl resembling the German loess, is adapted best to agriculture and grazing. Wide fertile bottom-lands extend along the broadest streams, and the richest upland soil is found, averaging 20 m. in thickness, while vegetable humus or black mold frequently extends to a depth of 20 ft. Wild grasses thrive luxuriantly, the 'blue joint' attaining a height of 6 ft., and yield from 1½ to 4 tons of hay per acre, while 35 bushels of wheat to the acre is not an uncommon yield.

Climate.—The climate is dry and exhilarating; winters comparatively short; spring begins in Mar.; open weather continues till Dec.; corn-planting begins in Apr.; frequent high winds and severe storms; greatest rainfall in May and June. The mean winter temperature ranges from 22° to 30°; spring 47° to 49°; summer 70° to 74°; autumn 49° to 51°. The hygienic advantages are elevation, dryness, abundance of ozone, and excellent drainage, making the state particularly beneficial to consumptive people; and the disadvantages are the prevalence of rheumatism, neuralgia, and, in places, malaria.

Geology.—The geological formations are limited almost wholly to the carboniferous, Permian, cretaceous, and tertiary; and of the first only the upper is found, occupying 2,500 sq. m. in the s.e., and showing best in Richardson co. Prof. Aughey, state geologist, says that in Pliocene times the Republican river and its valley constituted a great geyser region, and that curious beds of flour-like geyserite are still found along the river, equalling the best tripoli for polishing purposes. Numerous

memorials of the glacial epoch are found—hard limestones, worn smooth and crossed by glacial scratches in a direction averaging 17° e. of s. Above the surface rock are, in their order: blue clay (1–30 ft.); modified drift, gravel, and clay (1–9); gravel and bowlders (1–6); black soil containing silicified wood; gravel, sand, and drift bowlders; calcareous sand; loess (2–200); and black surface soil (1–30). Prof. Aughey also says that, after the ice age, a fresh-water lake covered much of N. and the adjoining region on the e. and s.e., and that it was gradually filled up with sediment brought down by the Missouri river. The mineral wealth of the state consists mainly of bituminous, block, and lignite coal, all in thin beds, with a little iron, several valuable beds of limestone, yellowish-gray sandstone, and red freestone for building; deposits of good brick and pottery clay; and extensive salt springs in the s.e., with the principal basin in Lancaster co., 12 by 25 m., showing 29 per cent. of remarkably pure salt. Alum in paying quantity has been discovered, and extensive beds of peat partially compensate for absence of marketable coal. Cottonwood, oak, elm, maple, black walnut, cedar, hickory, hackberry, and pine are the principal woods, all but the latter (in the n.w.) growing on the bluffs and river-banks. Planted timber grows rapidly on the prairie. Since the establishment of arbor-day (1872), much attention has been given to tree-planting in various parts of the state, and the public-school children alone have set out 355,560,000 forest, shade, and fruit trees.

Zoology.—N. was at one time the home of unlimited hordes of buffalo, elk, deer, Rocky Mountain sheep, black, brown, and grizzly bear, antelopes, panthers, wolves, coyotes, beaver and foxes; but nearly all these animals have been exterminated. Some of the smaller are still found, with numerous rodents, two species of venomous serpents, and many harmless ones. Game birds are numerous, including wild turkeys and grouse; and nearly all the birds of prey, fine plumage, and singers, common to the Rocky Mountain region, abound. Various fish, mollusks, and reptiles are found in the principal streams, and fish-breeding has been attempted at several points.

Agriculture.—In 1880 the farm lands covered 9,944,826 acres (of which 5,504,702 were improved); comprised 63,387 farms, valued with fences and buildings at $105,932,541; contained implements and machinery valued at $7,820,917; had live-stock valued at $33,440,265; cost for repairs and new buildings $1,249,975, and fertilizers $20,794; and yielded products valued at $31,708,914. The principal products were: barley 1,744,686 bushels; buckwheat 17,562; Indian corn 65,450,135; oats 6,555,875; rye 424,348; wheat 13,847,007; hay 785,433 tons; Irish potatoes 2,150,896 bushels; sweet potatoes 13,628; tobacco 57,979 lbs.; wool 1,282,656; milk 625,783 gallons; butter 9,725,198 lbs.; cheese 230,819. The live-stock comprised 204,864 horses; 19,999 mules and asses; 7,234 working oxen; 161,187 milch cows; 590,129 other cattle; 199,453

sheep; and 1,241,724 swine. Official reports 1888 gave: corn, 144,217,000 bushels, 4,097,067 acres, $31,727,740 value; wheat, 14,508,000 bushels, 1,560,021 acres, $12,-041,640; rye, 1,570,000 bushels, 115,472 acres, $753,801; oats, 26,177,000 bushels, 1,014,606 acres, $4,973,630; barley, 3,520,000 bushels, 156,428 acres, $1,830,208; buckwheat, 44,000 bushels, 3,914 acres, $27,421; potatoes, 6,321,000 bushels, 84,283 acres, $2,275,641; hay, 1,441,440 1,108,800 acres, $5,405,400; horses, 542,036, value, $37,-787,194; mules, 45,792, $4,040,759; milch cows, 420,069, $8,464,390; other cattle, 1,306,372, $22,242,548; sheep, 239,400, $503,338; and hogs, 2,309,779, $12,985,579. In 1890 the number of farms had increased from 63,387 to 141,107; number of live-stock from 2,424,590 to 4,647,630; value of live-stock from $33,440,265 to $81,099,941; and crops of the three principal cereals from 85,853,018 bushels to 185,902,000.

Manufactures.—N. had (1880) 1,403 manufacturing establishments, employing 4,993 hands, using capital $4,-881,150, paying in wages $1,742,311, using materials valued at $8,208,478, and yielding products valued at $12,-627,336. The chief industry according to capital employed was the manufacture of flour and grist-mill products, which had 170 establishments, employed capital $1,615,070, paid wages $165,085, materials $3,532,942, and received $4,193,086 for products. Next were malt liquors, which had 23 establishments, employed capital $427,200, paid wages $56,663, materials $210,109, and received $393,870 for products. Then followed slaughtering and meat-packing, 12 establishments, $330,700 capital, $64,717 wages, $1,097,839 materials, $1,359,397 products; saddlery and harness, 114 establishments, $214,-230 capital, $83,039 wages, $276,474 materials, $477,364 products; printing and publishing, 22 establishments, $191,250 capital, $167,438 wages, $167,860 materials, $419,-461 products; tin, copper, and sheet-iron ware, 71 establishments, $132,675 capital, $64,228 wages, $165,050 materials, $320,680 products; brick and tile, 87 establishments, $130,740 capital, $150,189 wages, $102,078 materials, $349,478 products; paints, 1 establishment, $100,-000 capital, $17,000 wages, $200,000 materials, $350,000 products; sawed lumber, 38 establishments, $93,375 capital $29,313 wages, $164,878 materials, $265,062 products; all other industries, 865 establishments, $1,645,910 capital, $944,639 wages, $2,291,248 materials, $4,498,938 products. In 1890 the manufacturing establishments had increased nearly threefold in number, and more than fourfold in value of products.

Commerce.—N. had (1890) no port of entry nor U. S. customs district, and with the Dakotas composed one internal-revenue district, with headquarters at Omaha. The revenue collections of the whole district in the fiscal year 1889 were: on distilled spirits $1,973,496; tobacco $97,409; fermented liquors $174,428; oleomargarine $3,077; penalties $65; total $2,248,477. No separate account was kept of the commerce of N., which was known

to be large, by reason of her various products and excellent railroad facilities. See OMAHA.

Railroads.—The first railroad train in the state was run 1865, on a track of 122 m. In 1869 the Union Pacific road was extended across it to Omaha (474 m.), and 1870 the mileage was 705. Then the Chicago Burlington and Quincy road entered the state, and the mileage has increased to (1875) 1,127; (1882) 2,310; (1888) 4,900. In 1882 the various trunk lines and branches in the state had cost $172,057,659, had net earnings $11,719,921, and paid interest and dividends $8,895,252. In 1889 the railroad lines and equipments were assessed $29,674,879, other railroad property $1,422,398. Omaha was the centre of 13 converging lines that ran 122 passenger trains in and out of the city daily.

Religion.—In 1885 the Lutheran was the largest denomination, with 144 churches, 80 ministers, and 17,500 members. The Disciples of Christ reported 75 churches, 13,580 members; Meth. Episc. 96 churches, 12,494 members; Presb. 121 churches, 4,340 members; Bapt. 126 churches, 4,226 members; Congl. 111 churches, 3,121 members; Rom. Cath. 67 churches, 49 priests; and 22 other denominations had 20 to 1,600 members each. Later reports showed Presb. 5 synods, 141 ministers, 204 churches, 9,381 members, 132 Sunday-schools, 1,283 officers and teachers, 9,277 scholars; Congl. 149 ministers, 167 churches, 6,364 families, 8,537 members, 12,188 Sunday-school members; Bapt. 15 associations, 173 ministers, 218 churches, 9,620 members, 155 Sunday-schools, 1,315 officers and teachers, 9,500 scholars, church property valued $435,036; Meth. Episc. 3 conferences, 286 ministers, 378 churches, 35,507 members, 567 Sunday-schools, 5,601 officers and teachers, 37,023 scholars, church property valued $1,050,589; Prot. Episc. 1 diocese, 1 missionary district, 47 ministers, 59 parishes and missions, 1,341 families, 2,624 members, 238 Sunday-school teachers, 2,091 scholars, diocesan school for girls, diocesan branch of the brotherhood of St. Andrew; and Rom. Cath. 2 dioceses (Lincoln and Omaha), 2 bps., 118 priests, 199 churches, 106 chapels and stations, 1 college, 6 academies, 44 parochial schools, 3,807 scholars, 4 hospitals, 1 orphan home, and Rom. Cath. pop. 73,640.

Education.—In 1880 N. had 142,308 children of school age (5–21 years,) of whom 100,871 were enrolled in schools, and 62,510 were in average daily attendance. The total cost of maintaining the public schools was $1,079,966, of which $565,651 were appropriated for teachers' salaries. There were 4 universities and colleges, with 37 instructors and 661 students. In 1887–8 there were 5,187 school buildings; 298,006 children of school age; 215,889 enrolled; 129,623 in average daily attendance; 2,752 male teachers; 6,560 female teachers; 243 graded schools; $4,057,274 received for public-school purposes; school property of all kinds valued $5,123,179; 2,722,346 acres remaining out of 2,884,398 granted the state for educational purposes; total permanent school fund $6,532,792. There were 2

public normal schools, with 14 instructors, 555 students, 5,200 vols. in libraries, scientific apparatus valued $2,075, and grounds and buildings valued $116,000; and 1 private normal school, with 11 instructors, 102 students, 1,000 vols. in the library, and grounds and buildings valued $10,000. There were 5 private secondary schools for both sexes: Blake Hall, at Beatrice, chartered 1881; Bellevue College (Presb.), Bellevue, 1880; Franklin Academy (Congl.), Franklin 1881; Oakdale Academy (Presb.), Oakdale, 1881; and Luther Academy (Evang. Luth.), Wahoo, 1883. These had 24 instructors, 236 male and 191 female students, 2,550 vols. in the libraries, grounds and buildings valued $68,500, productive funds $7,000, and benefactions during year $4,894. There were 5 colleges and universities, with 61 instructors, 933 (314 female) students, 20,000 vols. in the libraries, scientific apparatus valued $69,180, grounds and buildings valued $800,000, productive funds $292,000, income therefrom $15,700, tuition fees $6,200, total income, excepting board and lodging, $172,250, benefactions during year $36,500.

The various colleges of liberal arts were: Nebraska Central College, Central City, organized 1885 (non-sect., but under Meth. Episc. auspices); Doane College, Crete, 1872 (Congl.); Univ. of Nebraska, Lincoln, 1869 (non-sect.); Gates College, Neligh, 1881 (Congl.); and Creighton College, Omaha, 1879 (Rom. Cath.). In 1886 the entire Methodist interest of the state was united in one central univ., and the existing denominational colleges made departments of it. The new Nebraska Wesleyan Univ. was located at Lincoln, the corner-stone of the main building was laid 1887, Sep., and instruction was begun a year later. The normal department was established in Nebraska Central College, under the name of the State Normal School of the Meth. Episc. Church in N. In 1888 the corner-stone of the Christian Univ., also at Lincoln, was laid, and instruction in it begun in the autumn 1889. The State Univ., Lincoln, chartered 1869, had 26 professors and instructors, 232 male and 180 female students, 4-years' course, 8,000 vols. in the library, scientific apparatus valued at $50,000, grounds and buildings valued at $400,000, and state income $132,750. The industrial dept. has a large farm, and a new chemical building, with general, qualitative, and quantitative laboratories, was completed 1886. There were in N. 3 teachers' associations, 3 teachers'-institute organizations, and a state teachers' reading-circle, with co. and local branches. The special charitable, educational, and reformatory institutions of the state are the State Soldiers' Home at Grand Island, main building opened 1888; Insane Hospital at Lincoln, opened 1871; Insane Asylum at Norfolk, opened 1888; Institution for the Deaf and Dumb at Omaha, opened 1869; Institute for the Blind at Nebraska City, opened 1875; Industrial School for Juvenile Offenders at Kearney, opened 1881; Institution for Feeble-minded Youth at Beatrice, opened 1887; Home for the Friendless; State Penitentiary at Lincoln; Asylum for

the Incurable Insane at Hastings; and Industrial Home at Milford. The public-school census 1889 showed 316,-805 children of school age, and the state apportionment of school funds was $317,619.

Illiteracy.—Persons 10 years old and upward enumerated (1880) 318,271, unable to read 7,830, unable to write 11,528, whites unable to write 10,926; foreign-born whites enumerated 91,413, unable to write 5,824, whites 10–14 years old enumerated 49,719, unable to write 2,145, males 1,255, females 890, whites 15–20 years old enumerated 49,669, unable to write 960, males 536, females 424; whites 21 years old and upward enumerated 216,924, unable to write 7,821, males 3,836, females 3,985; colored persons 10 years old and upward enumerated 1,959, unable to write 602; colored 10–14 years old enumerated 252, unable to write 40, males 17, females 23; colored 15–20 years old enumerated 283, unable to write 66, males 27, females 39; colored 21 years old and upward enumerated 1,424, unable to write 496, males 256, females 240.

Finances and Banking.—In 1880 the assessed value of all taxable property was $90,585,782; state debt $375,582; total state, county, and municipal debts $7,425,757. In 1889 the state debt was $449,267, all bonded and maturing 1897; true real and personal property valuations $700,-000,000; assessed valuation $189,763,528; amount raised by taxation $1,500,000; state receipts $2,283,165; expenditures $2,518,159; tax rate 65 cts. on $100. In 1890, Mar. there were 127 national banks (cap. $11,286,000), 264 state banks (cap. $8,926,990), 24 incorporated banks (cap. $570,500), and 233 private banks and loan and trust companies, besides 5 fire-insurance companies with $985,706 assets and $373,429 liabilities.

History.—N. was included in the La. Terr., ceded by France to the United States 1803; and was explored by Capts. Lewis and Clarke (q.v.) 1804–5. In 1812 a part of the terr. was erected into the state of La., and the remainder was organized as the terr. of Mo. The present limits of N. were occupied by the Sioux, Otoe, Iowa, Missouri, Winnebago, Omaha, Sac, Fox, and other Indian tribes; and for many years the only part of the new terr. deemed safe and inviting to immigrants was that now in the state of Mo. In 1821 a part of this terr. was admitted as a state, the remainder continuing in terr. form. The first step toward the creation of the state of N. was 1844, when a bill was introduced in congress providing for the establishment of N. Terr. from the part of Mo. Terr. containing the future states of N., Kan., N. D., S. D., and (parts) Colo., and Wyo. Terr. No progress was made by the bill that year, or the next, when it was reintroduced in amended form. Another attempt in the same direction was made 1848, but nothing was gained. The project slumbered till 1853, when the celebrated bill for the admission of Kan. (q.v.) and N. was introduced. Kan. was much disturbed by events growing out of the virtual repeal of the Missouri Compromise, and the 'squatter sovereignty' doctrine; but N. was too sparsley settled to be

materially affected. On the understanding that the terr. was to be 'free' forever, the terr. of N. was created 1854, and included parts of the present Dakotas, Mont., Wyo., and Colo. In 1861 the extent of the terr. was diminished by the organization of Dak. and Colo. territories; 1864 of Mont.; and 1868 of Wyo. Owing to Indian depredations, the lack of precious and non-precious metals, and inadequate means of communication, the progress of the terr. was slow. The advent of the Union Pacific railroad on its w. border, and the selection of Omaha for the e. terminus, drew attention to the exceptional agricultural advantages of the terr. Substantial tides of immigration and eastern capital set in; and the terr. was admitted as a state 1867, Mar. 1. Its first constitution was in force till 1875, when the present one was adopted. The terr. sent 3,157 men to the Union armies during the civil war.

Government.—The executive authority is vested by the new constitution (1875) in a gov. elected for 2 years, salary $2,500 per annum; the legislative authority in a general assembly, comprising a senate of 33 members, and a house of representatives of 100 members, elected for 2 years, salary of each $3 per day, mileage 10 cts., biennial sessions, limit 40 days; and the judicial authority in (1) a supreme court of 3 judges elected alternately for 6 years, the senior judge presiding, semi-annual terms at the capital; (2) district courts in 6 districts, of one judge each, elected for 4 years, (3) co. courts, with jurisdiction of probate business and of minor civil and criminal matters, (4) police courts, and (5) courts of justices of the peace. The constitution prohibits slavery, religious tests as qualification for office, and distinction between citizens and aliens in respect to property rights. The gov. is vested with the pardoning power, except in treason, when it rests with the legislature, and in cases of impeachment; and has a qualified veto, which may be applied to single items of appropriation. The lieut.gov. receives a salary of $6 per day; sec. of state $2,000 per annum; treas. $2,500; auditor $2,500; atty.gen. $2,000; supt. public instruction $2,000; supt. board of agriculture $1,000; commissioner of public lands $2,000; chief justice supreme court $2,500; U. S. district judge $3,500; collector of internal revenue $4,500; surveyor-gen. $2,000; and 3 Indian agents $1,200 to $1,600 each.

The successive govs., with their terms of service, are as follows: *Terr.*—Francis Burt 1854; T. B. Cuming (act'g) 1854–5; Mark W. Izard 1855–58; William A. Richardson 1858; J. S. Morton (act'g) 1858–9; Samuel W. Black 1859–61; Alvin Saunders 1861–66; David Butler 1866–7. *State*—David Butler 1867–71; W. H. James (act'g) 1871–73; Robert W. Furnas 1873–75; Silas Garber 1875–79; Albinus Nance 1879–83; James W. Dawes 1883–87; John M. Thayer 1887–91.

Counties, Cities, and Towns.—N. is divided into 88 counties, 6 being created 1886–88, and 4, 1889. In 1880 the most

populous counties were: Douglas 37,645; Lancaster 28,-090; Cass 16,683; Saunders 15,802; Otoe 15,727; Richardson 15,031; Saline 14,491; Gage 13,164; Clay 11,294; Dodge 11,263; York 11,170; Seward 11,147; 1885 (state census), counties: Douglas 72,658; Lancaster 39,719; Gage 26,164; Cass 20,705; Saunders 20,427; Saline 19,760; Otoe 19,366; Richardson 18,688; Adams 18,004; Holt 16,065; Dodge 15,499; Seward 15,225; York 15,082; Buffalo 14,-543; Clay 14,201; Fillmore 13,452; Butler 13,314; Nemaha 13,134; Hall 13,130; Platte 12,590; Custer 12,399; Hamilton 12,065; Jefferson 11,893; and Washington 11,855. The principal cities and towns were: Omaha 61,835; Lincoln 20,004; Hastings 7,980; Plattsmouth 5,796; Nebraska City 5,597; Beatrice 5,211; Grand Island 5,040; Fremont 4,014; Kearney 3,601; Columbus 2,573; Crete 2,258; Falls City 2,070; Seward 2,032; Brownville 1,029.

Politics.—State, congressional, and presidential elections are held Tuesday after the first Monday in Nov. Insane, idiots, convicts, and members of the U. S. army are excluded from voting. The state govt. (1890) is republican, with a party majority of 21 in the senate, 52 in the house, 73 on joint ballot. N. has 5 electoral votes. Her votes for pres. and vice-pres. have been as follows: 1868, U. S. Grant and Schuyler Colfax 3; 1872, U. S. Grant and Henry Wilson; 1876, Rutherford B. Hayes and William A. Wheeler; 1880, James A. Garfield and Chester A. Arthur; 1884, James G. Blaine and John A. Logan 5; 1888 Benjamin Harrison and Levi P. Morton.

Population.—(1860) 28,841; (1870) 122,993; (1880) 452,402; (1885) 740,645; (1890, Jan. 1, reported by the deputy commissioner of labor and industrial statistics) 1,100,000.

NEBRAS'KA (or PLATTE) RIVER: see PLATTE RIVER.

NEBRASKA CITY: city cap. of Otoe co., Neb.; on the Missouri river, and the Burlington and Missouri River and the Missouri Pacific railroads; 35 m. s. of Omaha, 58 m. e. of Lincoln. It is in the centre of the Neb. fruit belt; has 3 national banks (cap. $150,000), 1 state bank (cap. $50,000), 7 daily and weekly newspapers, 15 churches, brick court-house, opera-house, public library, gas and electric light plants, several flour-mills, pork-packing and sausage-making factories, large stock-yards, agricultural implement and canning factories, and a Rom. Cath. convent; and is the seat of Nebraska College (Prot. Episc.), founded 1865.—Pop. (1880) 4,183; (1885) 5,597; (1890) 8,500.

NEBUCHADNEZ'ZAR: see BABYLON.

NEBULA, n. *nĕb'ū-lă*, NEB'ULÆ, n. plu. *-lē* [L. *neb'ula*; Gr. *nephĕlē*, mist, a cloud: Ger. *nebel*, mist, fog]: an appearance as of a light gauzy cloud among the stars, usually seen only through a telescope, often resolvable by a powerful instrument into clusters of stars (see NEBULÆ): a white spot or slight opacity on the cornea. NEB'ULAR, a. *-lĕr*, of or relating to nebulæ. NEB'ULOUS, a. *-lŭs*, cloudy; hazy; pertaining to a nebula. NEB'ULOUSNESS, n. *-nĕs*, or NEB'ULOS'ITY, n. *-lŏs'ĭ-tĭ*, the faint misty appearance which surrounds many stars. NEBULY, n. *nĕb'ū-lĭ*, in *heraldry*, one of the partition lines which runs out and in, in a form supposed to represent the uneven edges of clouds: ADJ. covered or ornamented with wavy lines. NEBULAR HYPOTHESIS, theory or hypothesis which supposes that, in its primal condition, the solar system consisted of a nebulous mass, out of which were gradually evolved the sun, planets, and satellites of our system: see NEBULÆ, below.

NEB'ULÆ: indistinct patches of light in the heavens; in astromomical theory, aggregations in cloud-like form, either of stars too distant to be distinctly seen as separate and solid bodies, or of matter in a very rare state, as nitrogen and hydrogen gases, undergoing formation into new stars by a process of condensation. The increasing powers of the telescope have carried farther and farther the discovery, that many of the nebulæ are clusters of innumerable distinct stars, and this has suggested the view that all are of this class, only too remote to be discerned. But against this view are some evidences supplied by the spectroscope, showing conclusively that some of the apparent nebulæ are aggregations of rarely distributed matter, or gases, without any solid or liquid substance. The earlier observations suggested to Laplace the idea, which became developed into what was called the nebular hypothesis, that the nebulæ so widely and numerously observed, are vast rotating masses of the gaseous stuff of which worlds are made, the course of which would naturally be that of condensation into a solar system of bodies such as that to which the earth belongs. The idea had been

suggested by Swedenborg 1734, was taken up by Buffon 1749, and by Kant and Wright, but had a large place in science in the hands first of Laplace, who urged in his *Système du Monde* that a primordial gaseous mass might originally have filled the whole space from the sun to beyond the present limits of the solar system; that this mass contracted with loss of heat by radiation, and, in rotating about a central axis, threw off rings of condensing matter, which, as condensation proceeded, broke up into the planets and their satellites. Laplace did not himself suppose that the nebulæ now observed are similar masses of gaseous matter; he took them to be aggregations of stars, and nebulæ in appearance only. Sir William Herschel 1794 held the same view, but in two memoirs read to the Royal Soc. 1811 and 12, he advanced the conclusion, which Laplace in the later editions of his *Système* adopted, that some of the observed nebulæ, especially the more irregular, must represent primordial gaseous matter, and that our observations reveal the formation from this of (1) condensed clouds of such matter, the irregular nebulæ, of (2) nebulous or half-formed stars, and of (3) stars wholly formed as parts of a system, some of the matter of which is still in the primordial state. The advocacy of this view by Humboldt, Arago, Herbert Spencer, and others, with recent knowledge of the revelations of the spectroscope, of the ring which the asteroids of our system form, of the indications given by the zodiacal light, and of some other facts, have secured a great vogue for the nebular hypothesis, as a working theory of the evolution of the physical universe. But other advanced studies, e.g., of Helmholtz and Thomson on vortex rings, of Rankine on molecular vortices, of Maxwell, Pierce, and Hirn on rings like the rings of Saturn, of Schiaparelli on meteors and comets, and of Clausius on molecules, with much new light on the electrical conditions of all chemical action, are reopening many parts of the subject, with a prospect of new conclusions of great significance. In the present state of our knowledge, the question how worlds are formed awaits a final answer, but there seems no doubt of the general fact that throughout infinite space there exist together, though at what relative distances we have not yet the means of knowing, stars, clusters of stars, and gaseous nebulæ. See STARS. The spectroscope shows us bodies of gases, even where the telescope resolves the nebulæ into separate bodies; it shows us also glowing solid masses in some of the nebulæ; and in a third class these two are found combined. The observations of William Huggins of London, since 1864, Aug., have especially contributed to knowledge of these facts. Sir Wm. Herschel's memoir of 1786 recorded 1,000 new nebulæ and clusters; that of 1789 a second 1,000; that of 1802, 500 more. Sir John F. W. Herschel added 1,000 (1825–38). Many have since been added, and in Sir John Herschel's catalogue of 1864 there appeared 5,079.

NECESSARY, a. *nĕs'ĕs-sĕr-ĭ* [F. *nécessaire*—from L. *necessārĭŭs*, indispensable, unavoidable—from *neces'sĕ*, inevitable: It. *necessario*]: that cannot be otherwise; inevitable; essential; acting from necessity or compulsion; decisive by logical consequences: N. something indispensable; an essential (see NECESSITY). NEC'ESSARIES, n. plu. *-ĭz*, things that are daily in use and cannot be dispensed with. NEC'ESSARILY, ad. *-sĕr-ĭ-lĭ*, by inevitable consequence; indispensably; by fate. NEC'ESSARINESS, n. *-ĭ-nĕs*, the state or quality of being necessary. NECESSITARIAN, n. *nē-sĕs'sĭ-tā'rĭ-ăn*, or NECESSARIAN, n. *nĕs'ĕs-sā'rĭ-ăn*, one who holds the doctrine of philosophical necessity. NEC'ESSA'RIANISM, n. *-rĭ-ăn-ĭzm*, or NECES'SITA'RIANISM, n. *-ĭzm*, the doctrine of philosophical necessity in regard to the origin and existence of all things, but particularly as applied to acting or choosing (see FREE-WILL). NECES'SITATE, v. *-ĭ-tāt*, to make necessary; to compel; to constrain; to render unavoidable. NECES'SITATING, imp. NECES'SITATED, pp. NECESSITY, n. *nĕ-sĕs'ĭ-tĭ*, that which cannot be otherwise; that which must be (see below): extreme indigence; pinching poverty; irresistible power. NECES'SITIES, n. plu. *-sĭ-tĭz*, things necessary for human life. NECES'SITOUS, a. *-sĭ-tŭs*, pressed with poverty; destitute. NECES'SITOUSLY, ad. *-lĭ*. NECES'SITOUSNESS, n. *-nĕs*, extreme poverty or destitution. OF NECESSITY, by necessary consequence; by compulsion.—SYN. of 'necessary, a.': requisite; needful; inevitable; unavoidable; fatal; indispensable; involuntary; conclusive; decisive.

NECES'SITY: in philosophy, a word frequently used, but unfortunately vague in its signification. It occurs in connection with two different philosophical subjects; namely, the freedom of the will (see FREE-WILL); and the nature of our belief in fundamental truths such as the axioms of mathematics. It is alleged by some philosophers, that the truths held by us as most certain are the result of experience, and that the degree of certainty is but a measure of the universality of the experience. Others contend that such first principles as the axioms of mathematics are not only true, but *necessarily* true—i.e. it is impossible that they should have been otherwise. Such necessity, it is argued, cannot come from mere experience, and therefore implies an innate or intuitive force. Hence the theory of necessary truth is another name for the theory of instinctive or intuitive truth.

Necessity is a word too vague in its signification to serve as a leading term in philosophy. There are several meanings attaching to it.

1. Necessity, in the first place, means that one fact or statement is *implied* in another. Thus, if we say that all Christ's apostles were Jews, it follows necessarily that Peter was a Jew; this is not a new fact, but merely a re-assertion of a portion of the same fact. We are not at liberty to affirm a thing in one form, and then deny the same thing expressed in a different form. If we say this room is hot, it is repeating the assertion in another way,

to say that it is not cold. These truths follow by necessary inference. Hence the general axiom of the syllogism, that what is true of a whole class must be true of each individual, is a necessary truth in this sense. In affirming such a truth, we merely declare that we shall be consistent, and that when we have affirmed a proposition in company with other propositions, we are prepared to affirm it when taken apart from the others. This kind of necessity is sometimes called Logical necessity, and sometimes Mathematical necessity. We might call it Deductive necessity, or necessity by Implication.

2. A second meaning is Inductive certainty; or the certainty that arises from a well-grounded experience. That lead will sink in water; that animals need food and air in order to live; that warmth promotes vegetation; are truths that we call necessary, in the sense of being so certain that we may always count upon them. We presume with the highest confidence, that an unsupported body will fall to the ground, not because the fact of falling is implied in the fact of matter, but because nature has uniformly conjoined the two facts. We can speak even of moral necessity; by which we mean only uniform sequence and consequent certainty. When we declare that children whose education has been neglected must fall into evil courses, we declare what experience has shown us will happen in relation to the human mind.

3. When necessity means neither deductive implication, nor inductive certainty, it refers us to a peculiar test supposed to apply to the truths in dispute—namely, the inconceivableness of their opposite. It is said that, not only can we not *believe* in the opposite of the axiom that 'the sums of equals are equal,' but we cannot even *conceive*, imagine, or picture to ourselves the opposite of it. This impossibility of conceiving the contradiction of any statement is regarded by many as a peculiarly cogent circumstance in its favor. It distinguishes the axiomatic first principles from the truths of inductive science, these having, it is said, an inferior order of certainty. To this it may be replied, however, that men's power of conceiving is so much affected by their education and habits, that many things, whose opposites were at one time inconceivable, have since been found false; e.g., the notion that men could live at the antipodes was once reckoned inconceivable, and we now know it to be a fact. An unvarying association will often produce a disability to conceive anything different.

In commencing a discussion as to the necessary character of any truth, the disputants should agree beforehand which of the three meanings they intend. In the controversy on the Mathematical axioms, maintained between Dr. Whewell on the one hand, and Sir John Herschel and John Stuart Mill on the other, the third meaning is more particularly involved. The doctrine of Inconceivability, as the test of truth, has been put forward by Herbert Spencer, under the title of the Universal Postulate (*Principles of Psychology*, Part. I.).

NECHES, *něch'ĕz*, RIVER: rising in the central e. portion of the state, and flowing s. by e. 200 m., into Sabine Bay, where its waters, with those of the Sabine river, find their way, by Sabine Pass, into the Gulf of Mexico.

NECHO, *nē'ko*, or PHA'RAOH NE'CHO, or NE'KU: Egyptian king assigned by Rawlinson to B.C. 610–594—by Poole to B.C. 611–595. He belonged to the 26th dynasty of the kings of Egypt, and was son and successor of the real founder of this dynasty, Psammetichus or Psametik I., a monarch of great energy, who had begun a strengthening and extension of the empire of Egypt both in the s. toward Ethiopia and in the e. toward the Euphrates, where Nineveh was in decline. N. is notable in general history for building fleets on the Red Sea and the Mediterranean, and sending Phœnician seamen on voyages of discovery, one of these extending clear round Africa; and in Biblical history for inflicting defeat and death on King Josiah, of Judah, B.C. 609 (or 608). With the energy, but not the prudence of his father, he sought to extend the empire of Egypt e. to the Euphrates. It was on his first march into Assyria that he found king Josiah rash enough to oppose him, and unwillingly fought, and slew him, in the valley of Megiddo, a place which was the key to the route eastward. He advanced to the Euphrates, captured and garrisoned Carchemish, and on his return deposed Jehoahaz, King of Judah, and put Eliakim or Jehoiakim in his place, as a vassal of Egypt. There is some reason to suppose that he took Jerusalem at this time. Three years later Nabopolassar, King of Babylon, sent an army under his son Nebuchadnezzar to attack and recover Carchemish, and on Necho's marching to meet this attack, he was defeated, and lost all the Asiatic part of his empire.

NECK, n. *nĕk* [AS. *hnecca*, the back of the head: Dan. *nakke*, nape of the neck: Icel. *hnacki;* Norw. *nakkje*, the back of the head: Dut. *nek*, the nape, the neck (see NAPE)]: the part of an animal between the head and the trunk; a narrow tract of land connecting two larger portions together; the long slender part of anything, as of a bottle; in *mil.*, the interior opening of an embrasure. NECKED, a. *nĕkt*, having a neck—used only in composition, as *stiff-necked*. NECK-BAND, the collar of a shirt. NECKCLOTH, a cravat; something worn round the neck by men. STIFF-NECKED, obdurate; obstinate. NECKERCHIEF, n. *nĕk'kĕr-chĭf*, a kerchief or cloth for the neck. NECKLACE, n. *nĕk'lās*, a string of beads, or some other ornament, worn round the neck. NECK'LACED, a. *-lāst*, adorned as with a necklace. NECK-MOLDING, molding at the junction of the capital and shaft of a column. The plain space between the astragal of the shaft and the moldings of the cap of the Roman Doric order is called the *neck*. NECKTIE, a small cravat for the neck. ON THE NECK, in *OE.*, immediately after; following another closely. TO HARDEN THE NECK, to grow obstinate. NECK AND CROP, completely; utterly. TO BREAK

THE NECK OF, to destroy the main force or power of; to reduce to an almost powerless condition. **NECK OR NOTHING**, with the risk of everything. **NECK-VERSE**, the verse anciently required to be read by a criminal to entitle him to benefit of clergy, said to be the beginning of the 51st Psalm.

NECKAR, *nĕk'ėr:* one of the largest tributaries of the Rhine, and principal river of Würtemberg. It rises near the source of the Danube, on the e. declivity of the Black Forest, close to the village of Schweningen. It has a winding course of 240 m. first n.e. to its junction with the Fils, then n. to its junction with the Jaxt, finally n.w. to Mannheim, where it joins the Rhine. The principal places on its banks are Tübingen, Heilbronn, Heidelberg, and Mannheim. Its course, leading first through a deep and narrow dale, leads afterward through a succession of wide and fertile tracts, inclosed by soft, vine-clad hills. The scenery of its banks is, in general, very beautiful, and in many places highly romantic. From Cannstadt, about midway in its course, the N. is navigable; steamers ply regularly to Heidelberg. Good wines are grown on its banks. Chief affluents, on the left, the Enz; on the right, the Fils, the Rems, the Kocher, and the Jaxt.

NECKER, *nĕk'ėr*, F. *nā-kär'*, JACQUES: financier and minister of France: 1732, Sep. 30—1804, Apr. 9; b. at Geneva, where his father, native of Brandenburg, but of Anglo-Irish descent, was prof. of German law. N. became a banker in Paris, and acquired a large fortune during the Seven Years' War. After retiring from business, he became the representative of his native city at the French court; and acquired a high though not exactly a solid reputation by his publications on political economy and finance, particularly his *Essai sur la Législation et le Commerce de Grains* (Par. 1775). In this essay he appears as the opponent of the wise Turgot's liberal measures in regard to the traffic in grain, and claims for the state the right of fixing its price, and, if it thinks it necessary, of prohibiting its exportation. On the removal of Turgot from office, 1776, June. N. was called to assist in financial affairs, and after the brief administration of Clugny, he was made general director of finances 1777, June. N. could not conceal his elation: this was his weak point. He had all the vanity, egotism, and love of show that marked his brilliant daughter, the famous Baronne de Staël-Holstein (q.v.). Nevertheless, he succeeded not only in meeting the exigencies of the war in which France was involved on the side of the American colonies, but in restoring to some degree of order the general financial affairs of the country, though mainly by the perilous expedient of borrowing, which he was enabled to do to an almost unlimited extent, owing to the confidence reposed in his financial dexterity. Some years he borrowed as much as 490 millions of francs. His Protestantism, however, and some retrenchments which he made

in the royal household with his publication on the financial affairs of France (*Compte Rendu*, which produced an immense sensation), made him an object of great dislike to the queen Marie Antoinette and court, and 1781, May 12, he was suddenly dismissed. He retired to Geneva, where he was visited, from motives of sympathy and respect, by the highest personages in the realm, the Prince of Condé, the Dukes of Orleans and Chartres, the Prince of Beauvau, the Duke of Luxembourg, Maréchal de Richelieu, the Abp. of Paris, etc., but returned to Paris 1787, from which he was soon banished on account of an attack which he published on the financial management of the reckless and ignorant Calonne. In the financial and political crisis, however, which followed on the financial administration of Loménie de Brienne, Louis XVI. found himself under the necessity of calling N. 1788, Nov., to the office of comptroller general of finances and minister of state. N. recommended the calling of the states-general, and thereby acquired the greatest popularity. He failed, however, in the difficulties which ensued, having no capacity for political affairs in other than their mere financial aspects. When the court, 1789, June 23, determined on nullifying the resolution of the third estate, N. hesitated, and the king therefore dismissed him July 11, and required him to leave the French dominions immediately. He obeyed, but the disturbances of July 12–14 (on the last of which days the Bastile was taken) were the result of his dismissal, and the king was under the necessity of recalling him. He now allied himself with Mounier and other ministers for the introduction of a constitution like that of Britain, with two chambers or houses of parliament; but this caused a great diminution of his popularity, and he was unable to contend in debate with Mirabeau and other great leaders of the national assembly. On the rejection by the assembly of his scheme of a loan, and the adoption instead of it of Mirabeau's scheme of assignats, he resigned his office 1790, Sep., and retired to his estate of Coppet, near Geneva, where he occupied his remaining years with literature. Besides the works above mentioned, he published several on political and on religious subjects, particularly a work on the French Revolution (4 vols. Par. 1796), frequently reprinted.

NECROGENOUS, a. *něk-rŏj'ĕ-nŭs* [Gr. *nekros*, dead; *gennăō*, I produce]: applied to cryptogamous parasitic plants which grow upon sickly and dead plants, and accelerate their death.

NECROLITE, n. *něk'rō-līt* [Gr. *nekros*, dead; *lithos*, a stone]: a term applied to certain nodules in limestone strata which, when struck, exhale a fetid odor like that of putrid flesh. NECRONITE, n. *něk'rō-nīt*, a variety of felspar which, when struck, gives off a fetid odor.

NECROLOGY, n. *něk-rŏl'ŏ-jĭ* [Gr. *nekros*, dead; *logos*, a discourse]: a register of deaths. NECROLOGICAL, a. *něk'-rŏ-lŏj'ĭ-kăl*, pert. to a register of the dead. NECROLOGIST, n. *ně-krŏl'ŏ-jĭst*, one who gives an account of deaths.

NECROMANCY, n. *nĕk'rō-măn-sĭ* [OF. *nigromance*, conjuring, the black art—from mid. L. *nigromantiā*—from Gr. *nekros*, dead; *manteia*, divination]: divination by the agency of the spirits of the dead, or by devils, who are conjured up to be questioned regarding the future or other secret things; enchantment. NEC'ROMANCER, n. *-sēr*, one who practices the art; one who raises the dead; a conjurer; a sorcerer. NEC'ROMAN'TIC, a. *-tĭk*, pert. to or performed by necromancy. NEC'ROMAN'TICALLY, ad. *-lĭ*.—*Necromancy*—which was called the *black art*, owing to the confusion of its origin with L. *niger*, black—originated in the east, in the most remote antiquity. It is condemned in the Old Testament; and the story of the witch of Endor affords a remarkable illustration of it, which has perplexed some interpreters of Scripture. The 11th book of Homer's *Odyssey* bears the title Νεκρομαντεια, and in it the shade of Tiresias is represented as brought up and consulted by Ulysses. In most parts of Greece, necromancy was practiced by priests or consecrated persons in the temples; in Thessaly, it was the profession of a distinct class of persons called Psychagogoi ('Evokers of Spirits'). The practice of it in that country was ultimately connected with many horrid rites, in which human blood, half-burned portions of bodies from funeral piles, the immature fetus cut out of the womb, etc., were employed, and sometimes human beings were slain, that their spirits might be consulted ere they finally passed into the lower world. The establishment of Christianity under Constantine caused necromancy to be placed under the ban of the church. There are evident traces of necromancy in some of the older Norse and Teutonic poems. The mediæval belief in the evocation of spirits belongs rather to sorcery than to necromancy. See SPIRITISM. See Peucer's *Commentarius de Præcipuis Divinationum Generibus* (Zerbst, 1591).

NECROPHAGA, n. *nĕ-krŏf'a-ga* [prefix *necro-*; Gr. *phagein*, to eat]: in *entom.*, name adopted by many modern entomologists for Latreille's Clavicornes. It contains a number of families, which have scarcely anything in common, except the practice of feeding on decaying animal or vegetable matter.

NECROPHAGOUS, a. *nĕ-krŏf'ă-gŭs* [Gr. *nekros*, dead; *phagein*, to eat]: feeding on the dead; carrion-eating.

NECROPHILISM, *nĕ-krŏf'il-ĭzm*: unnatural and revolting liking or appetite for the dead which has manifested itself in various ways. Consorting or living with the dead has been observed as a characteristic of melancholia. Individuals have inhabited graveyards, preferring the proximity and association of corpses with which they had no tie, to the cheerfulness and comforts of home; and there is recorded one notorious case, in which a gentleman, though on bad terms with his wife while alive, carried her body with him through India, scandalizing the natives, and outraging the feelings of all, by placing the coffin under his bed. This hideous tendency

may enter into certain developments of cannibalism where the feast is celebrated in memory of a departed friend, rather than in triumph over a slain foe. It is affirmed that there were anthropophagous epidemics in 1436 and 1500; and the history of vampirism connects that delusion with the moral perversion now described. Patients in asylums, especially in continental Europe, are still encountered who bemoan the crime of having devoured the dead, and violated charnel-houses. Instances of N. almost incredible are on record even in civilized countries, though confined to communities living in remote places, rude and unenlightened, and cherishing the superstitions of ages and states of society with which they have no other connection, and of which they have almost lost the recollection.—*Annales Medico-Psychologiques*, t. viii. 472.

NECROPOLIS, n. *nĕ-krŏp'ŏ-lĭs* [Gr. *nekros*, dead; *polis*, a city]: term applied to the cemeteries in the vicinity of ancient cities. It occurs in classical antiquity only as applied to a suburb of Alexandria, lying w. of that city, having many shops and gardens and places suitable for the reception of the dead. The corpses were received and embalmed in it. Here Cleopatra, the last of the Ptolemies, applied the asp to her breast, to avoid the ignominy of being led in triumph by Augustus. The site of the N. of ancient Alexandria seems to have been where are now the catacombs, consisting of galleries and tombs hollowed out of the soft calcareous stone of which the city is built, and lying at the extremity of the city. The term N. is now, however, used in a much more extended sense, and applied to all the cemeteries of the ancient world. These consisted either of tombs, constructed in the shape of houses and temples, and arranged in streets, like a city of the dead; or else of chambers hollowed in the rock, and ornamented with façades, to imitate houses and temples. Such cemeteries are to be distinguished from the *columbaria*, or subterraneous chambers of the Romans, in which their urns were deposited; or the rows of tombs along the Via Appia; or the cemeteries of the Christians, whose bodies were deposited in the ground. The most remarkable necropolises are that of Thebes in Egypt, at a place called Gournah, on the left bank of the Nile, capable of holding 3,000 persons, and which it is calculated must have contained at least 5,000 mummies; those of El-Kab or Eileithyia; of Beni-Hassan, or the Speos Artemidos; and of Madfun or Abydos; of Siwah or the Oasis of Ammon: see OASIS. In Africa, the N. of Cyrene is extensive; and those of Vulci, Corneto, Tarquinii, and, Capua are distinguished for their painted tombs (see TOMB), and the numerous vases and other objects of ancient art which have been exhumed from them. Large necropolises have been found also in Lycia, Sicily, and elsewhere—See BURIAL.

Strabo, xviii. 795–799; Plutarch, vit Anton; Letronne *Journal des Savans* (1828), 183; Dennis, *Cities and Cemeteries of Etruria*, i. 412, i. 276–358.

NECROPSY, n. *nĕk'rŏp-sĭ* [Gr. *nekros*, dead; *opsis*, sight]: the examination of a dead body.

NECROSCOPIC, a. *nĕk'rō-skŏp'ĭk* [Gr. *nekros*, dead; *skopĕō*, I view]: relating to post-mortem examinations.

NECROSIS, n. *nĕ-krō'sĭs* [Gr. *nekrōsis*, a killing deadness]: mortification and death of a bone; a state analogous to mortification or gangrene in soft parts; also a disease of plants marked by small black spots, and followed by decay. The term is often restricted to the cases in which the shaft of a long bone dies, either directly from injury or from violent inflammation, and is inclosed by a layer of new bone; the death of a thin superficial layer, which is not inclosed in a shell of new bone, being usually termed *exfoliation*.

The bones of the lower extremity—the femur and tibia—are those most frequently affected by N.; though in persons engaged in making lucifer-matches the lower jaw is very often affected by it, the disease being set up by the pernicious action of the vapor of phosphorus. The dead bone, known as the *sequestrum*, generally consists of the circumference of the shaft only, and not of the interior, and the inside of the dead portion presents a rough appearance, as if worm-eaten. If the membrane investing the bone (the periosteum) remain healthy, it deposits lymph, which speedily ossifies, forming a shell of healthy bone, which completely invests the dead portión.

The essential point in the treatment is the removal of the *sequestrum*, too purely a surgical operation to be described in these pages.

NECTAR, n. *nĕk'tĕr* [L. *nectar*—from Gr. *nektar*, the drink of the gods: F. *nectar*]: in *anc. myth.*, the name given by Homer, Hesiod, Pindar, and the Greek poets generally, and by the Romans, to the beverage of the gods, as *Ambrosia* (q.v.) was said to be their food: but Sappho and Alcman make nectar the food of the gods, and ambrosia their drink. Homer describes nectar as resembling red wine, and represents its continued use as causing immortality. By the later poets, nectar and ambrosia are represented as of most delicious odor; and sprinkling with nectar, or anointing with ambrosia, is spoken of as conferring perpetual youth, and they are assumed as the symbols of everything most delightful to the taste. Hence, in modern usage the sweet secretion of flowers; any sweet and very pleasant drink. NEC'TARED, a. *-tĕrd*, imbued or mingled with nectar. NECTA'REAL, a. *-tā'rĕ-ăl*. NECTA'REAN, or NECTA'REOUS, a. *-tā'rĕ-ŭs*, pert. to or containing nectar; sweet as nectar; delicious. NECTA'REOUSLY, ad. *-lĭ*. NECTA'REOUSNESS, n. *-nĕs*, the quality of being nectareous. NECTA'REAL, a. *-rĕ-ăl*, pert. to the nectary of a flower. NECTARIFEROUS, a. *nĕk'tĕr-ĭf'ĕr-ŭs* [L. *fero*, I produce], producing nectar or honey: having a honey-like secretion. NECTARY, n. *nĕk'tĕr-ĭ*, any abnormal part of a flower; properly, in *botany*, an organ in the flowers of

many phanerogamous plants, devoted either to the secretion or the reception of honey. Of the former kind are nectariferous glands, scales, and pores; of the latter, tubes, cavities, etc. But the term was for a long time very vaguely employed by botanists, and seemed to be used for any part of a flower which had no other name. Thus among the parts formerly called nectaries, are those now called *Disk* (q.v.) and *Corona* (q.v.). NEC'TARINE, n. *-ĭn*, a variety of peach having a smooth rind (see PEACH): ADJ. sweet as nectar. NECTA'RIUM, n. *-rĭ-ŭm*, the nectary. NEC'TAROUS, a. *-tĕr-ŭs*, sweet as nectar.

NECTO-CALYX, n. *nĕk'tō-kā'lĭks* [Gr. *nēktŏs*, swimming; *kalux*, cup]: the swimming bell or disk of a Medusa or jelly-fish.

NEDJED, *nĕd'jĕd*, or NEJD, *nĕj'd*: the central highlands of Arabia (q.v.):

NÉE, *nā* [F. *née*—from L. *nata*, born]: born—a term often placed before a married woman's maiden name in order to designate the family name to which she belongs, as Madame de Staël, *née* Necker—that is, born Necker, or her family name was Necker.

NEED, n. *nēd* [AS. *nead*, necessity: Dut. *nood*; Ger. *noth*, need, want: Icel. *nauth*; Goth. *nauths*, need: Russ. *nudit'*, to constrain]: want; occasion for something; necessity; pressing difficulty: V. to want; to require; to have necessity for; in the third pers. sing. pres., *need* is employed as an auxiliary, and drops the usual terminating *s*, as *he need not come*. NEED'ING, imp. NEED'ED, pp. NEED'ER, n. *-ĕr*, one who needs or wants. NEED'FUL, a. *-fûl*, necessary; requisite. NEED'FULLY, ad. *-lĭ*. NEED'FULNESS, n. *-nĕs*, the state or quality of being needful. NEEDS, ad. *nēdz*, necessarily; indispensably, used with *must* and *will*. NEEDLESS, a. *nēd'lĕs*, unnecessary; not needed. NEED'LESSLY, ad. *-lĭ*. NEED'LESSNESS, n. *-nĕs*, the quality of being needless. NEEDY, a. *nēd'ĭ*, very poor; distressed by want of the means of living. NEED'ILY, ad. *-ĭ-lĭ*. NEED'INESS, n. *-nĕs*, the state of being needy; want; poverty. MUST NEEDS, must of necessity. WILL NEEDS, will of necessity; will by determination. NEED'MENT, n. in *OE.*, something necessary.—SYN. of 'need n.': lack; exigency; emergency; extremity; strait; indigence; penury; poverty; destitution; distress.

NEEDFIRE [Ger. *nothfeuer*; allied to Sw. *gnida*, to rub; Eng. *knead*]: fire obtained by the friction of wood upon wood, or the friction of a rope on a stake of wood, to which a widespread superstition assigns peculiar virtues. With varieties of detail, the practice of raising N. in cases of calamity, particularly of disease among cattle, has been found among most nations of the Indo-European race. It has been supposed effectual to defeat the sorcery to which the disease is assigned. When the incantation is taking place, all the fires in the neighborhood must be extinguished, and they all have to be relighted from the sacred spark. In various parts of the

Scottish Highlands, the raising of N. was practiced not long ago, and it is perhaps still resorted to in some very remote localities. The sacrifice of a heifer was thought necessary to insure its efficiency. The ways of obtaining fire from wood have been various; one is by an apparatus which has been called the 'fire-churn,' a cylinder turning on a pivot, and furnished with spokes, by means of which it is made to revolve very rapidly, and fire is generated by the friction. Fire struck from metal has been supposed not to possess the same virtue, and in some instances the persons who performed the ceremony were required to divest themselves of any metal which might be about them. In its origin, the fire-churn was considered a model of the apparatus by which the fires of heaven were daily rekindled. It is still in daily use in the temples of the Hindus. The same superstition was doubtless the origin of the story of Prometheus (q.v.). See Grimm's *Deutsche Mythologie;* Supplement to Jamieson's *Scottish Dictionary.*

NEEDHAM, *nēd'ham:* town, Norfolk co., Mass.; 11 m. s.w. of Boston, on the New York and New England railroad (Woonsocket division). The s. boundary is formed by the Charles river. It has churches and good schools. Its manufactures include hosiery, paper, and glue. Many persons doing business in Boston have their homes in N. It formerly included the present town of Wellesley, which accounts for its diminished population since 1880. Pop. (1880) 5,252; (1885) 2,586.

NEEDLE, n. *nē'dl* [Goth. *nethla*; O. H.G. *nadala*; Dut. *naelde*; Icel. *nál*, a needle; Dut. *naeden*; Ger. *nähen*, to sew; W. *noden*, a thread; Gael. *snathad*, a needle; *snath*, thread]: a small steel instrument, pointed at one end, and having an eye or hole at the other, used in sewing (see NEEDLES): the artificial magnet of the compass: anything needle-shaped. NEEDLES, n. plu. *nē'dlz*, term applied to detached masses of rock standing out from cliffs or shores, e.g., The Needles, cluster of five islet rocks (only three now remaining) off the w. point of the Isle of Wight, of pyramidal shape and chalky formation with strata of black flint interspersed throughout; caused probably by attrition of the waves. The loftiest one, 120 ft. high, fell into the sea 1764. On the outmost Needle is a light-house. NEE'DLEFUL, n. *-fûl*, a thread of the length ordinarily used in sewing. NEEDLER, n. *nēd'lér*, a needle-maker. NEEDLE-POINTED, as pointed as a needle. NEEDLE-WOMAN, a woman who earns a livelihood by sewing. NEEDLE-WORK, work done with the needle. NEEDLE-BOOK, a book having leaves for preserving needles. NEEDLE-FISH, the pipe-fish. NEEDLE-ORE, a variety of sulphuret of bismuth found in long, thin, steel-gray crystals. NEEDLE-STONE, a mineral of the zeolite family. NEEDLE-GUN, a gun fired by means of a needle forced forward by a spiral spring upon a detonating composition contained in a part of the cartridge: see BREECH-LOADING GUNS.

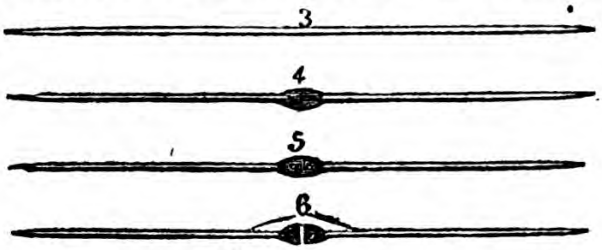
NEE'DLES: instruments of metal, or other material, for carrying the thread in sewing, embroidery, knitting, netting, and similar operations. N. are generally of metal; but bone, ivory, and wood also are used; for ordinary needle-work, called sewing, they are of fine steel; for other kinds of work, they are often much larger and differently formed as may be required.

Needle-making is an important branch of industrial art, and it has of late years attained to extraordinary perfection. Small bars of steel not thicker than a good-sized bristle, can be made perfectly round, pointed at one end with wonderful accuracy, pierced at the other end with an oval hole, the sides of which are so smoothly rounded that there is no friction upon the thread, and the whole of each instrument, not more than an inch

Fig. 1.

in length, beautifully polished, and sold at an exceedingly low price, notwithstanding that a large part of the operations required in their manufacture are manual. The first operation, after the wire has been selected, and its thickness accurately gauged, is to cut it

into eight-ft. lengths; this is done by winding it in a coil of 16 ft. circumference, and then cutting this coil into exact halves with powerful cutting shears. The coiling of the wire is so managed, that there are 100 pieces in each half when cut; the bundles of 100 wires are again cut into the necessary lengths for two needles; and so well arranged are the cutting shears, that a man can easily cut enough for 1,000,000 needles in a day of 12 hours. The pieces cut from a coil, though now reduced to the length of two small needles, are nevertheless somewhat curved; they are therefore collected into bundles of about 6,000, and placed within two iron rings, which hold them loosely together, as in fig. 1; they are then slightly softened by firing, and are laid on an iron plate or bench, and are pressed with a small curved bar in two or three positions, by which the operator manages to make them all perfectly straight. They are now taken to the grinder, who sits in front of his grindstone upon a seat which is hollow, and forms an air-shaft open toward the stone; through this a blast of air is forced when the wheel is in motion, which carries away from the grinder every particle of the subtle dust from the needle points and the stone. Before this humane invention, which has rendered the operation quite innocuous, the loss of life in this manufacture was more serious than in any other industrial occupation. The operator, with great tact, holds about 25 of the wires, by means of his thumb, pressed against the inside of his fingers, the wires, which are held straight and applied to the grindstone, being dexterously turned round on the inside of the hand by means of the thumb, until they are ground sharp at one end; they are then reversed, and the other ends are similarly sharpened (fig. 3). They are next taken to the *impressing* machine, which in principle consists of a weight hanging to a block, which is raised by the hand and let fall at pleasure; the wires are placed



Figs. 3, 4, 5, 6.

in succession under this, so that the falling weight strikes each wire exactly in the middle, and there flattens it, as in fig. 4. The hardening of the flattened part by the blow is removed in the annealing oven, and the holes are next punched, two in each flattened portion, as in fig. 5. These are either done by hand-punches worked by children, who acquire great nicety in the operation, or by a machine on the same principle as the *impressing* machine; this not only punches the two holes, but also

forms a small cross-cut between them (as seen in fig. 5), which is otherwise made by a file. At this cross-cut the wire is broken in two, and may now be regarded as two rudely-formed needles (fig. 6), each having a flattened and pierced head, as shown in fig. 7. A number of these are now threaded (*spitted*) on a thin wire, as in fig. 8, and

Fig. 7.

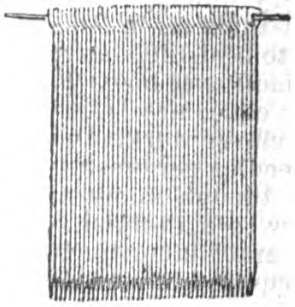


Fig. 8.

are placed in a vice, which holds them firm and straight, so that the workman can file the heads on the top and sides, so as to remove all the burred edge outside the dotted lines in fig. 7. The next process is *oil tempering*, for which they are made hot, and immersed in sufficient oil to coat them thoroughly; the oil is then burned off, an operation which renders the needles brittle. They are then weighed out into lots of about 500,000 each, and after being shaken so that they lie side by side, they are laid on a square piece of strong canvas, and a quantity of sand

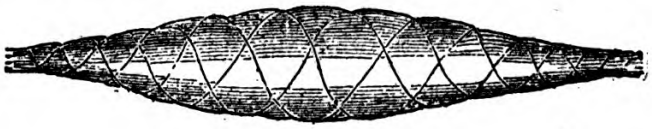


Fig. 9.

and emery-powder being mixed with them, they are corded up very securely into a long roll (fig. 9), 18 to 24 inches in length. A number of these rolls or bundles are placed on a movable wooden slab, in the *scouring machine*, and over them is placed another heavily weighted slab. The action of the machine, of which these slabs form part, is to move them forward and backward in opposite directions, the bundles of needles acting as rollers, the pressure upon which works the inclosed needles, sand, etc., together, so that after eight to ten hours, which this operation occupies, instead of the blackened appearance they had when it began, they are white and silvery-looking. They are now removed to an exactly similar machine, where they are polished. Here they are separated from the sand and emery, and are removed to other canvas squares; and when mixed up with a paste of *putty-powder* and oil, are again corded up, and made to roll forward and backward under the weighted wooden slab of the *polishing machine* for four hours more. The

next process is to remove them from the canvas, and agitate them in a vessel with soft-soap and water, to remove the oil and putty-powder, and next to dry them in ash-wood sawdust. They are now highly polished and well tempered, but not all of exactly the same length, nor are the eyes perfect; they are therefore passed to a person who, by nice management of a small gauge, sorts them very quickly into certain lengths (*evening*), and arranges them all in one direction (*heading*). They then pass on to be drilled, an operation requiring great nicety, as the small oval holes have to be so polished all round, as not to cause any friction on the thread in sewing with them; a clever workman will drill and polish the holes of 70,000 needles per week. The needle is now practically finished, though many minor operations are considered necessary to high-finish. This little instrument, which costs so much labor for its formation, has by these operations acquired immense value. The wire of which the ordinary-sized needles are made is so thin, that 5½ pounds go to form 74,000 needles. Of ordinarily sized needles, 2¼ millions weigh 3 cwt., and are worth rather more than $1,000, though the steel wire of which they were made was worth only about $70 at the commencement of the manufacture. English-made needles have the highest repute, and are made chiefly in Redditch and other parts of the county of Worcester.

NEEDLESS, NEEDY, etc.: see under NEED.

NEEL, n. *nēl:* OE. spelling of NEEDLE.

NEEM'-TREE: see MELIACEÆ.

NEEMUCH, *nē-mŭch'*, or NIMACH: town of India, territory of Gwalior (q.v.), near the n.w. border of Malwa, 320 m. s.w. from Delhi, on a slightly elevated ridge rising from a well-cultivated plain. It is 1,476 ft. above the sea. A British cantonment was established here 1817. Prior to the Sepoy mutiny of 1857–59, the officers' quarters comprised about 80 bungalows, beautifully situated among gardens; but all, except a single bungalow, were destroyed, 1857, by the mutineers, who massacred the Europeans, and held the fort till it was captured by Brigadier Stuart after a siege of 14 days. The situation of N. is regarded as one of the most healthful in India; the climate is agreeable, the nights cool even in the hot season, the winter seldom so cold as to make fires requisite, and frost very rare.—Native pop. about 4,000.

NEENAH, *nē'na:* city, Winnebago co., Wis.; a railroad centre, five m. s. of Appleton, 13 m. n. of Oshkosh; and is a popular summer resort. It is separated from Menasha by Fox river, which furnishes abundant water-power, available because of the rapid current, in winter as well as summer. It has several churches, a high school, newspapers, banking facilities, and several hotels. There are mineral springs and a beautiful public park. Steamers connect N. with Fond du Lac, 30 m. below. The manufactures include flour, woolen goods, paper, pails, staves, sash and blinds. Pop. (1880) 4,202; (1885) 4,910; (1887) estimated 6,000.

NE'ER, ad. *när:* contr. of NEVER, which see.

NEERWINDEN, *nār'vĭn-dĕn,* a small village of Belgium, in the northwest corner of the province of Liége, is celebrated in history for the great victory gained by the French under Luxembourg over the English under William III. (1693, July 29)); and also for the defeat of the French under Dumouriez by the allies under the Prince of Coburg (1793, March 18).

NEESE, v. *nēz* [Ger. *niesen;* Dut. *niezen,* to sneeze; Sw. *nysa;* O.Icel. *hnjosa,* to sneeze]: the old spelling of SNEEZE, which see. NEES'ING, imp. NEESED, pp. *nēzd.*

NEESIMA, JOSEPH HARDY, LL.D: Japanese Christian minister and educator: 1843, Feb. 15—1890, Jan. 23; b. Yeddo. From Dutch books he learned of a Creator; from Bridgman's *Hist. of the U. S.* the words 'Heavenly Father'; then in a missionary's book, a story of the Bible, he read of the creation. Desiring to know more, he went to the open port in Japan, Hakodate, and covertly reached a ship that brought him to Shanghai, China. Thence he sailed as cabin boy to Boston, in a ship that fortunately was owned by the late Alpheus Hardy—one of Boston's most benevolent men. Mr. Hardy educated him at Phillips Acad., Andover, and at Amherst Coll., where he took the degree B.S. 1870. Before ordination as a minister at Boston 1874, he was in Andover Seminary 1871-2, and while a student of theol. he was for a while interpreter of the Japanese embassy, travelling in the United States and Europe; this led to friendly aid to him in his work in Japan by leaders of the new movement there. An eloquent appeal by him at the meeting of the Am. Board of For. Miss. 1874, resulted in a gift of $4,000, with which he returned to Japan and established a Christian school at Kyota. This, with the help of gifts, including nearly $60,000 from prominent Japanese and $100,000 from an American, grew to a university, with 900 students. Latterly, Dr. N's work, besides the entire direction of the school, was chiefly in theological teaching. He wore himself out in labors to which is largely due the great progress of Christianity in Japan.

NEEVE, or NIEVE, n. *nēv:* in *Scot.,* the closed hand: see NEIF.

NE EXEAT REGNO, *nē ĕks'ē-ăt rĕg'nō:* title of a writ issued in England by the court of chancery to prevent an individual leaving the kingdom, unless he gives security to abide a decree of that court. The writ was originally resorted to in cases of attempts against the safety of the state, but is now issued where an equitable debt or demand is sought to be substantiated by a bill or proceeding in chancery; resembling the process known in the common-law courts as arresting and holding to bail. In the United States the title Ne Exeat Republica is applied to this writ, formerly rarely used in cases of official breach of trust, and now in most states abolished.

NEFARIOUS, a. *nĕ-fā'rĭ-ŭs* [L. *nefārius*, impious, base —from *nefas*, an unlawful action: It. *nefario*]: villainous; wicked in the extreme; abominable. NEFA'RIOUSLY, ad. *-lĭ*. NEFA'RIOUSNESS, n. *-nĕs*, the quality of being nefarious.—SYN. of 'nefarious': iniquitous; infamous; impious; atrocious; horrible; dreadful; detestable; vile.

NEFF, *nĕf*, FELIX: Swiss evangelist: 1798, Oct. 8—1829, Apr. 12; b. Geneva. He was educated by a widowed mother of remarkable intelligence and piety, with occasional instruction by Swiss pastors; and showed special taste for nat. history, mathematics, and such authors as Plutarch and Rousseau. After employment in his early years with a florist, he enlisted as a soldier to relieve his mother of his support, and by fidelity and good character soon rose to the rank of sergeant. His religious and moral strictness, however, were not in harmony with army life, and being advised to turn to religious work, he gave up his commission 1819, and undertook service as a catechist and parish missionary, spending his first years in the cantons of Geneva, Neufchâtel, Berne, and the Pays de Vaud, and going, 1821, to the needy district of Grenoble in France, and thence to Mens in Isère. Restrained by scruples of evangelical strictness from seeking ordination in the established church of Geneva, and not permitted as a foreigner to ask it of the French Prot. Church, he resorted to England, was ordained among the Congregationalists 1823, returned to Mens, and went thence into the high Alps, for the most self-sacrificing and zealous and brave devotion to the destitute descendants of the Vaudois. His parish comprised 17 villages within a circuit in the wild Alpine valleys of 80 m.; and some of those to whom he preached, organizing schools, building school-houses, teaching and visiting, were little better than barbarians. From these exhausting labors he went, worn out, to the baths of Plombières, only to go thence to Geneva to die.

NEGAPATAM, *nĕg-a-pa-tâm′*: town of Brit. India, presidency of Madras, district of Tanjore, 124 m. s.s.w. from Madras, on a small estuary of one of the many small southern mouths of the Cauvery. The manufacture of cotton and silk fabrics was, in former times, extensively carried on here, but has greatly declined in consequence of the cheapness of British goods. A chief branch of industry is the expression of oil from the cocoa-nut and from oil-seeds. There is considerable trade with Ceylon. The harbor is suited only for small coasting-vessels; but measures are in progress for its improvement. N. is a terminus of the Great Southern railway of India. It was cap. of the Dutch possessions in India, having been taken by them from the Portuguese 1660; but was taken by the British 1781. Pop. in a joint municipality with Nagur adjoining it (1881) 53,855.

NEGATIVE, n. *nĕg′ă-tĭv* [F. *négatif*—from L. *negatīvus*; It. *negativo*, that denies, negative—from L. *nego*, I deny]: a word which denies, as *not*, *no*; a proposition by which something is denied; the right or power of withholding assent; the position taken up by a party who opposes or denies; in *photography*, a picture either on paper or glass, having the lights and shadows reversed, from which positives or ordinary photographs may be taken in unlimited numbers (see below): ADJ. implying denial; returning the answer *no* to an inquiry or request; opposed to affirmative; opposed to positive, as a *negative* morality—that is, that which merely contents itself with abstaining from evil; without positive statement; tending to prove the opposite; having the power of stopping or withholding: V. to disprove; to dismiss or reject by a vote; to refuse to enact or sanction something proposed. NEG′ATIVING, imp. NEG′ATIVED, pp. *-tĭvd*. NEGATION, n. *nĕ-gā′shŭn* [F.—L.]: denial as opposed to *affirmation*; a declaration that a certain thing is *not*, or has *not* been; argument drawn from denial. NEG′ATIVELY, ad. *-lĭ*. NEG′ATIVENESS, n. *-nĕs*, the quality of being negative. NEGATIVE ELECTRICITY, resinous electricity, or that evoked on sealing-wax by rubbing with flannel. NEGATIVE PREGNANT, the negation of one thing which implies the affirmation of another. NEGATIVE QUANTITY, in *alg.*, the quantity to be subtracted, or which is affected by the sign (—) (see NEGATIVE QUANTITIES). NEGATIVE SIGN, the sign (—) in algebra.

NEG′ATIVE, in Photography: that kind of photographic picture in which the lights and shadows of the natural object are transposed; the high lights being black, and the deep shadows transparent, or nearly so. Negatives are taken on glass and paper by various processes, and should indicate with extreme delicacy, and in reverse order, the various gradations of light and shade which occur in a landscape or portrait. A N. differs from a positive inasmuch as in the positive it is required to produce a deposit of pure metallic silver to be viewed by *reflected* light; while in the N. density to *transmitted* light is the chief desideratum; accordingly inorganic re-

ducing and retarding agents are employed in the development of a positive, while those of organic origin are used in the production of a N. Adopting the collodion process (which has almost completely replaced every other) as a type of the rest, the conditions best adapted for securing a good N. are here indicated, as presenting the principles which may be applied in any process.

The possession of a good lens and camera being taken for granted, and favorable conditions of well-directed light being secured, all that is necessary is to establish a proper and harmonious relation between the collodion bath, developer, and time of exposure. A recently iodized collodion will generally be moderately neutral, in which case, if the developer be at all strong, and the weather warm, the bath should be decidedly acid, or *fogging* will be the result. Should the collodion, however, be red with free iodine, a mere trace of acid in the bath will suffice, while the development may be much prolonged, even in warm weather, without fogging. If the simple fact be borne in mind that the presence of acid, either in the bath collodion or developer, retards the reducing action of the developer, it will suffice to guide the operator in many difficulties. The value of a N. consists in the power it gives of multiplying positive proofs. See POSITIVE PRINTING: PHOTOGRAPHY.

NEGATIVE QUANTITIES: generally defined as quantities the opposite of 'positive' or 'numerical' quantities, and forming the first and great point of difference between algebra, as a separate science, and arithmetic. In the oldest treatises on algebra they are recognized as distinct modifications of quantity, and existing apart from and independent of positive quantity. In later times, this opinion was vigorously combated by many mathematicians, among whom Vieta was prominent; but the more eminent analysts retained the old opinion. Newton and Euler distinctly assert the existence of N. Q. as quantities less than zero; and Euler supports his opinion by the well-known illustration of a man who has no property, and is $50 in debt, to whom $50 requires to be given in order that he may have nothing. After all, this discussion is little more than a verbal quibble, though interesting from the prominent position which it long held. It had its rise in the difficulty of satisfying the requirements of a constantly progressing science by the use of signs and forms retaining their original limited signification. It was soon felt that the limited interpretation must be given up; and accordingly an extension of signification was allowed to signs and modes of operation. + and —; which were formerly considered as merely symbols of the arithmetical operations of addition and subtraction, were now considered as 'general cumulative symbols, the reverse of each other,' and could signify gain and loss, upward and downward, right and left, same and opposite, to and from, etc. Applying this extended interpretation of signs to a quantity such as —4, we obtain at once a true idea of a negative quantity;

for if + 4 signifies 4 inches *above* a certain level, —4 signifies 4 inches *below* that level, and therefore, though a positive quantity in itself (since a negative is, strictly speaking, an impossible existence), it may be fairly considered to be less than zero, as it expresses a quantity less by 4 than 0 inches above the level. Keeping this idea in view, it has been conventionally agreed to admit the existence of N. Q. as existing *per se*. The only errors which can flow from this arise from misinterpretation of results, for the four fundamental operations of addition, subtraction, multiplication, and division are unaffected by the extended interpretation of signs. The following is an illustration of the value of an extended interpretation of the negative sign, showing at the same time how much more general are the ideas conveyed by algebraic expressions than by ordinary language: If at the present time a father is 50 years, and his son 20 years old, when will the father be three times as old as his son? This problem, when solved, gives — 5 as the number of years which must elapse before the father's age is three times the son's. Now, at first sight, this result appears to be absurd, but when we consider the terms of the problem, its explanation is easy. The question asked pointed to a number of years *to come*, and had the result turned out to be *positive*, such would have been the case, and the fact of its being negative directs us to look in a 'contrary' direction, or backward to time *past;* and this is found to satisfy the problem, as 5 years 'ago' the father was 45 and his son 15.

N. Q. arise out of the use of general symbols in subtraction, as in the formula $a - b$, where we may afterward find that b is greater than a: see SUBTRACTION.

NEGAUNEE, *nĕg-aw'nē:* city, Marquette co., Mich.; a railroad centre, 176 m. n. of Green Bay city, 12 m. w. of Marquette, which is on Lake Superior. It is about 900 ft. above the level of the lake. It has a large trade with the surrounding region, but derives its principal interest from its rich iron mines, in which a large capital is invested. It has churches, educational and banking facilities, a newspaper, blast furnaces, powder mills, and a nitro-glycerine factory. Pop. (1880) 3,931; (1884) 4,110.

NEGLECT, v. *nĕg-lĕkt'* [L. *neglectus*, disregarded, slighted—from *nec*, nor, not; *lego*, I gather]: to omit by carelessness or design; to slight or disregard; not to heed; not to care for; not to attend to; in *OE.*, to postpone: N. omission to do anything that can be done, or that requires to be done; slight; habitual want of regard; inattention; state of being disregarded. NEGLECT'ING, imp. NEGLECT'ED, pp. NEGLECT'ER, n. *-ĕr*, one who. NEGLECT'FUL, a. *-fŭl*, careless; inattentive; heedless. NEGLECT'FULLY, ad. *-lĭ*, with neglect. NEGLECT'EDNESS, n. *-nĕs*, state of being neglected. NEGLECT'INGLY, a. *-lĭ*, carelessly; inattentively. NEGLECTION, n. *nĕ-glĕk'shŭn*, in *OE.*, state of being negligent.—SYN. of 'neglect, v.': to contemn; disesteem; overlook; omit.

NEGLEY, *něg'lĭ*, JAMES SCOTT: soldier: b. 1826, Dec. 26, East Liberty, Alleghany co., Penn. He was educated at the Western Univ. of Penn., Pittsburg; enlisted 1846 in the 1st Penn. regt., and was in most of the battles of the Mexican war; after which he became a farmer and horticulturist. At the opening of the civil war he raised a brigade for three months' service; was commissioned brig.gen. of volunteers 1861, Apr.; served with the Army of the Ohio in Tenn. and Ala.; at the battle of Lavergne, 1862, Oct. 7, his command defeated the Confederates under Forrest and Anderson; he was in the battle of Murfreesboro (Stone River), and promoted maj. gen. for gallantry 1862, Nov. 29; served in the Georgia campaign; and at Chickamauga, 1863, held Owen's Gap. After the war he settled at Pittsburg; was representative in congress 1869–75 and 1885–87 (as a republican); then settled in New York.

NEGLIGEE, n. *něg'lĭ-zhā'* [F. *négligé*, in undress—from *négliger*, to neglect—from L. *negligĕrĕ*, not to attend to]: a loose gown; an undress; an easy, unceremonious attire: a long necklace, especially of red coral.

NEG'LIGENCE, in Law: well defined as 'omitting to do something that a reasonable man would do, or the doing something that a reasonable man would not do;' briefly it is the failure to exercise care, according to circumstances. To maintain a cause of action for N. the party injured must show: 1, N. on the part of the person complained of; 2, injury to himself; and 3, freedom from N. on his own part. N. may arise in cases where the parties are strangers to each other, or where they occupy some special relation to each other by contract expressed or implied. Included in the first class are those cases where persons, in the use of their own property or in pursuit of their own private business, cause an injury to some third person. Each person must so use his own property and so conduct his own business as not to cause injury to third persons. Thus, if a man blasts rocks on his own property and, failing to exercise the diligence and caution necessary to such operations, causes injury to his neighbors, he renders himself liable to an action for N.; the violation of statutory and municipal regulations for the purpose of protecting persons or property from injury is of this class of cases. In the second class are those cases where a party by contract with others obligates himself to exercise a certain degree of care, and fails to do so; this obligation to exercise care may arise from the contract or may be imposed by law. In cases of this sort, the N. will be slight, ordinary, or gross, depending inversely on the amount of care to be exercised. Thus, if slight care is necessary, only gross N. amounting almost to wilfulness will render a person liable, as in the case where a person for his own benefit only deposits property with another person; if ordinary care is demanded, a person will be liable for ordinary N., as in the case where property is deposited by one person

with another for the benefit of both; where the care to be exercised is extraordinary, a person will be liable for slight N., as where a deposit of property is made for the sole benefit of the person with whom it is deposited. Ordinary N. is that want of care which a reasonably prudent and cautious man would have exercised under the circumstances of the particular case; slight N. is that lack of a still greater degree of care; gross N. is a lack of that degree of care which the depositary would exercise in the management of his own affairs. Recent decisions have questioned the value of these distinctions. There are two exceptions to these rules: 1, innkeepers; 2, common carriers. These on the grounds of public policy are absolute insurers—that is, they are liable for injury without regard to the care exercised, unless the damage is occasioned by 'the act of God' or by the public enemy. Contributory N. is conduct on the part of the injured person without which the injury would not have happened: it is a complete defense to an action. Though the injured person may actually have contributed to the injury, it will be no defense if the jury conclude that the injury would have arisen no matter how diligent the plaintiff would have been. The person injured may have either a civil remedy, in the nature of money damages, or a criminal remedy, or both. In criminal N. the question of intent is all-important; this arises mostly in cases of homicide.

There can be no N. where there is no breach of duty; if the injury complained of was inevitable, no action can be maintained; thus in cases where the injury was caused by an 'act of God,' or in cases where the person complained of did not or was not legally bound to have the power sufficient to prevent the injury, there is no negligence.

A master is responsible to the public, and under certain conditions to his servants, for the N. of his servants acting in execution of his business (see MASTER AND SERVANT); the question of N. and the care to be exercised varies according to the circumstances of each case, and is generally one of fact for the jury, but may be one of law for the judge to decide, where the case falls within a general or well-settled rule or principle.

By the common law, if death resulted from N., no action for damages could be maintained by the personal representatives of the deceased; but by a statute in England, called Lord Campbell's Act, and by similar statutes in most of the states in this country, the executor or administrator of the deceased can commence an action for damages for the benefit of the near relatives of the deceased. The amount of damages to be recovered in such an action is limited by these statutes to a certain fixed amount; in most of the United States not more than $5,000 can be recovered.

NEGLIGENT, a. *nĕg'lĭ-jĕnt* [F. *négligent*—from L. *negligens* or *negligen'tem*, reckless, that cares not for anything: It. *negligente*]: careless; heedless; habitually inattentive; not doing what ought to be done. NEG'LIGENTLY, ad. *-lĭ*. NEG'LIGENCE, n. *-jĕns* [F.—L.]: carelessness; the habit of omitting to do things which ought to be done; omission of duty: in *law* (see above).—SYN. of 'negligent': inattentive; thoughtless; remiss; neglectful; regardless; indifferent; slighting.

NEGOCIATE, NEGOCIABLE, etc.: erroneous spellings of NEGOTIATE, NEGOTIABLE, etc.

NEGOTIATE, v. *nĕ-gō'shĭ-āt* [L. *negotiātus*, transacted business—from L. *negōtium*, business, employment, anything to be done—from *nec*, not; *otium*, ease, leisure: Sp. *negociar*: F. *négocier*]: to transact or arrange business; to bargain; to treat with others in regard to public affairs or private matters; to pass or transfer, as a bill of exchange. NEGO'TIATING, imp. NEGO'TIATED, pp. NEGO'TIABLE, a. *-shĭ-ă-bl*, capable of being negotiated; that may be passed or transferred to another. NEGO'TIABIL'ITY, n. *-bĭl'ĭ-tĭ*, the quality of being negotiable or transferable. NEGO'TIA'TION, n. *-shĭ-ā'shŭn* [F. *négociation*—from L. *negotiatio*]: the act of negotiating; the treating with another in regard to sale or purchase; the transaction of business between states or nations. NEGO'TIATOR, n. *-ā-tĕr*, one who negotiates or treats with others. NEGOTIABLE INSTRUMENTS, or NEGOTIABLE PAPER, applied to such documents as Bills of Exchange and Promissory Notes, on which a right of action passes by their assignment by mere indorsement: see BILL OF EXCHANGE: EXCHANGE. *Note.*—Historically, the correct spelling is *negotiate* for the verb, and *negociation* for the noun, but this is not attended to—see Skeat.

NEGRITOS, *nĕ-grī'tōs*, or **NEGRILLOS**, *nĕ-grĭl'lōs* [Sp. diminutive of negroes]: name given by the Spaniards to certain negro-like tribes inhabiting the interior of some of the Philippine Islands, and differing essentially both in features and in manners from the Malay inhabitants of the Eastern Archipelago. They bear a very strong resemblance to the negroes of Guinea, but are much smaller in size, averaging in height not more than four ft. eight inches, whence their appellation of N., or little negroes. They are also called by the Spaniards *Negritos del Monte*, from their inhabiting the mountainous districts for the most part; and one of the islands where they are most numerous bears the name of *Isla de los Negros*. These N. are known also by the names Aeta, Aigta, Ite, Inapta, and Igolote or Igorote. They are described as a short, small, but well-made and active people, the lower part of the face projecting like that of the African negroes, the hair either woolly or frizzled, and the complexion exceedingly dark, if not quite so black as that of the negroes. The Spaniards describe them as less black and less ugly than the negroes—*Menos negros y menos feos*. All writers concur in speaking of them as sunk in the lowest depths of savagedom, wandering in the woods and mountains, without any fixed dwellings, and with only a strip of bark to cover their nakedness. Their only weapons are the bow and arrow; and they live on roots, wild fruits, and any sort of animals that they can surprise in their haunts, or conquer in the chase. By the Malays, they are despised and hated; and the buffalo-hunters in the woods, when they meet with them, do not scruple to shoot them down like wild beasts or game. 'It has not come to my knowledge,' says a Spanish writer, 'that a family of these negroes ever took up their abode in a village. If the Mohammedan inhabitants make slaves of them, they will rather submit to be beaten to death than undergo any bodily fatigue; and it is impossible, either by force or persuasion, to bring them to labor.' The same writer, an ecclesiastic, speaks of them as gentle and inoffensive in their manners, whenever he himself came in contact with them; and, though informed that some of them were cannibals, he was not inclined to believe the report. Dr. Carl Scherzer, historian of the circumnavigation of the *Novara*, when at Manila, had an opportunity of seeing a negrita girl, whom he thus describes: 'This was a girl of about 12 or 14 years of age, of dwarf-like figure, with woolly hair, broad nostrils, but without the dark skin and wide everted lips which characterize the negro type—a pleasing-looking, symmetrically-formed girl.'

According to Spanish statements, the N. are found in only five of the Philippine Islands—Luzon, Mindoro, Panay, Negros, and Mindanão—and are estimated at about 25,000 souls. Remnants of them exist, however, in the interior of some of the other islands in the Eastern Archipelago; and they are scattered, also, though in small numbers, through certain islands of Polynesia.

They are altogether an island people, and are hence treated of by Prichard under the designation of Pelagian negroes. By Dr. Pickering they are treated of as a distinct race, resembling the Papuan, but differing from it in the diminutive stature, the general absence of a beard, the projecting of the lower part of the face or the inclined profile, and the exaggerated negro features. The hair, also, is more woolly than that of the Papuans. Latham classed them under *Oceanic Mongolidæ*. Müller (1873) makes them Papuans; Peschel (1875), 'Asiatic Papuans;' while A. R. Wallace treats them as distinct from the Papuans. (See Keane's ethnological appendix to Wallace's *Australasia* (1880), and Wallace's *Malay Archipelago*.) There are numerous tribes of N. in the Philippines, who speak quite distinct and mutually unintelligible languages. Some find N. in New Guinea, New Britain, New Ireland, etc., and in Tasmania. Keane regards the Samangs, an aboriginal tribe in the peninsula of Malacca, as unmistakably negrito; and latterly the Andamanese have been referred to the same stock. Others have sought to trace a connection between the N. and the Bushmen and other dwarfish Africans on one hand, and the Ghonds and other dark aboriginal tribes of s. India on the other; and affirm that the Negrito race once occupied more space than it does at this time, and that it has in many instances preceded the dissemination of other races. We conclude with a description of a negrito native of Erromango (the island where the missionary Williams was murdered), supplied to Dr. Pickering by Horatio Hales, his associate in the United States exploring expedition. 'He was above five ft. high,' says Mr. Hales, 'slender and long limbed; he had close woolly hair and retreating arched forehead, short and scanty eyebrows and small snub nose, thick lips (especially the upper), a retreating chin, and that projection of the jaws and lower part of the face, which is one of the distinctive characteristics of the negro race. . . . Placed in a crowd of African blacks, there was nothing about him by which he could have been distinguished from the rest.' See PAPUA: POLYNESIA (*Polynesians*).

NEGRO, n. *nē'grō* [Sp. *negro*, a negro—from L. *nigrum*, black]: one of the black race of men in Africa or their descendants, distinguished by their woolly hair, flat noses, high cheek-bones, and thick protruding lips: ADJ. black. NEGRESS, n. fem. *nē'grĕs*, a female Negro. NEGRITO, n. *nĕ-grī'tō* [L. *nigritia*, black color, Negroland]: inhabitant of certain intertropical islands (see NEGRITOS, or NEGRILLOS). NEGROHEAD TOBACCO, tobacco softened with molasses and pressed into cakes, generally called Cavendish. NEGROLAND, the district of Africa occupied by the negro race.—The *Negro* denotes a considerable branch of the human family, possessing certain physical characteristics which distinguish it in marked degree from the other branches or varieties of mankind—especially the so-called whites or Europeans. In Blumenbach's fivefold division of mankind, the negroes occupy the first place under the variety *Ethiopian*, which likewise embraces the Kafirs, Hottentots, Australians, Alforians, and Oceanic negroes. In Latham's threefold division, they are placed among the *Atlantidæ*, and form the primary subdivision of *Negro Atlantidæ* in that author's classification; while in Pickering's elevenfold division, they occupy the last place in his enumeration of the races of mankind.

Both Prichard and Latham strongly protest against the common error of considering the term N. synonymous with African. 'It ought to be remembered,' says the former, 'that the word N. is not a national appellation, but denotes the ideal type constituted by the assemblage of certain physical characteristics, which is exemplified in the natives of Guinea in w. Africa, and in their descendants in America and the W. Indies.' And Latham in like manner observes: 'No fact is more necessary to be remembered, than the difference between the N. and African; a fact which is well verified by reference to the map. Here the true N. area—the area occupied by men of the black skin, thick lip, depressed nose, and woolly hair—is exceedingly small; as small in proportion to the rest of the continent, as the area of the district of the stunted Hyperboreans is in Asia, or that of the Laps in Europe. Without going so far as to maintain that a dark complexion is the exception rather than the rule in Africa, it may safely be said that the hue of the Arab, the Indian, and the Australian is the prevalent color. . . . What are the true N. districts? and what those other than N.? To the former belong the valleys of the Senegal, the Gambia, the Niger, and the intermediate rivers of the coast, parts of Sudania, and parts about Sennaar, Kordofan, and Darfúr; to the latter, the whole coast of the Mediterranean, the Desert, the whole of the Kafir and Hottentot areas s. of the line, Abyssinia, and the middle and lower Nile. This leaves but little for the typical negro.'

The N. has a black skin, unctuous and soft; woolly hair; thick lips; the lower part of the face prognathic, or projecting like a muzzle; the skull long and narrow;

and a low, retreating forehead. The skull is remarkably solid and thick, so that in fighting they often butt against each other like rams, without much damage to either combatant; and it is likewise so flat that burdens are easily carried upon it. According to Camper's lateral admeasurement, the head of the N. shows an angle of 70°, while that of the European shows one of 80°, on which difference of 10°, as he considered, depends the superior beauty of the latter. There is little reliance, however, to be placed on such a mode of admeasurement; and the same may be said of Blumenbach's vertical method. According to this, a considerable difference appears to exist between the skull of the N. and that of the European. 'But,' says Dr. Prichard, 'I have carefully examined the situation of the foramen magnum in many negro skulls; in all of them its position may be accurately described as being exactly behind the transverse line bisecting the antero-posterior diameter of the basis cranii. This is precisely the place which Owen has pointed out as the general position of the occipital hole in the human skull. In those negro skulls which have the alveolar process very protuberant, the anterior half of the line above described is lengthened in a slight degree by this circumstance. If allowance is made for it, no difference is perceptible. The difference is, in all instances, extremely slight; and it is equally perceptible in heads belonging to other races of men, if we examine crania which have prominent upper jaws. If a line is let fall from the summit of the head at right angles with the plane of the basis, the occipital foramen will be found to be situated immediately behind it; and this is precisely the case in N. and in European heads.' There is, in fact, neither in this respect—the conformation of the N. skull—nor in any other, solid ground for the opinion hazarded by some writers, and supported, either through ignorance or from interested motives, by many persons—that the N. forms a connecting link between the higher order of apes and the rest of mankind. The difference is certainly considerable between the highest European and the typical N., but the gulf between them both and the highest of the Simiæ is so nearly of the same width, that the difference is scarcely distinguishable. But the skin, hair, skull, lips, maxillary profile, and general facial appearance of the N., are not the only features that distinguish him in a great degree from the European, and seem to stamp him as a distinct variety of the human race. 'In the N.,' says Prichard, 'the bones of the leg are bent outward. Soemmering and Lawrence have observed that the tibia and fibula in the N. are more convex in front than in Europeans; the calves of the legs are very high, so as to encroach upon the hams; the feet and hands, but particularly the former, are flat; and the os calcis, instead of being arched, is continued nearly in a straight line with the other bones of the foot, which is remarkably broad.' As to the supposed excessive length of the forearm in

the N., a circumstance also adduced as showing an approach to the anthropoid apes, facts are altogether against the statement; there being no greater difference than is observable in individuals of any other variety of mankind. In stature, the N. is very much on a par with the European, often reaching six ft., and rarely declining below five and a half. There is much discussion as to the cause of the blackness of the skin in the N. It is generally supposed to depend on the greater amount of pigment cells in the *Rete Malpighii*, and in the greater number of cutaneous glands, as compared with the skin of Europeans. In the skin of the N. there is much oily matter, and he perspires profusely, which serves to keep him in health, while it diffuses a smell not agreeable to sensitive olfactory nerves. Of the hair of the N., Dr. Prichard remarks: 'I am convinced that the N. has hair properly so called, and not wool. One difference between the hair of a N. and that of a European consists in the more curled and frizzled condition of the former. This, however, is only a difference in the degree of crispation, some European hair being likewise very crisp. Another difference is the greater quantity of coloring matter or pigment in the hair of the N. It is very probable that this quality is connected with the former, and is its cause, though we cannot determine in what manner one depends upon another; but, as these properties vary simultaneously, and are in proportion one to another, we may infer that they do not depend upon independent causes.'

The Negroes, in their native seat, comprise various independent tribes, which are thus classified and enumerated by Dr. Latham: 1. *Western Negro Atlantidæ*, embracing the Woloffs, Sereres, Serawolli, Mandingos, Felups, etc., Fantis, etc.; the Ghá, the Whidah, Maha, and Benin tribes, the Grebo, etc. 2. *Central Negro Atlantidæ*, embracing the Yarriba, the Tapua, Haussa, Fulahs, Cumbri, Sungai, Kissúr, Bornú, etc.; Begharmi, Mandara, Mobba, Furians, Koldagi. 3. *Eastern Negro Atlantidæ*, embracing the Shillúk, etc.; Qámamyl, Dallas, etc.; Tibboo, Gongas. More recent classifications of the negro races and tongues separate the Fulah and Nuba groups, as well as the Bantu family, from negroes proper. See AFRICA; also Keane's appendix to *Africa* in Stanford's *Compendium of Geography*.

While these several tribes have their distinctive peculiarities, they yet bear strong general resemblance to each other, not only in physical appearance, but also in intellectual capacities, moral instincts, customs, and manners. The N. intellect has been generally considered inferior not only to the European, but to that of many primitive races not yet brought within the pale of civilization, while superior to that of the Australians, Bushmen, and Esquimaux. Some tribes are sunk in the lowest barbarism, and are either ferocious savages, or stupid, sensual, and indolent. This is the case, for the most part, according to Prichard, where the exaggerated N. type is discernible, as among the Bulloms, Pa-

pals, and other tribes on the coast of w. Guinea; also among the tribes near the Slave Coast, and in the Bight of Benin, where the slave-trade has been carried on to the greatest extent. In other parts they show capacity for practicing the arts of life. They are ingenious in the construction of their dwellings, they have some knowledge of the working of iron and other metals, they manufacture arms, dress and prepare the skins of animals, weave cloth, and fabricate numerous useful household utensils; and they are not altogether deficient in knowledge of agriculture. These marks of civilization are apparent mostly in the districts either wholly or partially converted to Mohammedanism. Mungo Park, in his account of Sego, capital of Bambarra, describes it as a city of 30,000 inhabitants, with houses of two stories high, having flat roofs, mosques in every quarter, and ferries conveying men and horses over the Niger. 'The view of this extensive city,' he says, 'the numerous canoes upon the river, the crowded population, and the cultivated state of the surrounding country, formed altogether a prospect of civilization and magnificence which I little expected to find in the bosom of Africa.' All tribes of negroes appear to be passionately fond of music, and show no little skill in the manufacture of musical instruments. They also express their hopes and fears in extemporary songs. Where Mohammedanism has not been introduced, the religion of the negroes is nothing but a debased *fetish* worship. They make fetiches of serpents, elephants' teeth, tigers' claws, and other parts of animals, at the dictation of their *fetich man*, or priest. They also manufacture idols of wood and stone, which they worship; and yet, under all this, they have some idea of a Supreme Being. They believe in good and evil spirits, and are perpetually practicing incantations to ward off the baneful influence of their spiritual enemies. Their religion, in fact, is one altogether of fear; and as this generally leads to cruelty, we find them for the most part indifferent to the sacrifice of human life. In some parts they even offer up human victims to propitiate their deities. They are cruel to their enemies and prisoners, and often shed blood for the mere savage delight that they experience in seeing it flow from their victims—e. g., in the inhuman *customs*, as they are called, of Dahomey, and the *Yam* and *Adai customs* of the Ashantees, as described by Bowdich.

The same indifference to human suffering, coupled with the passion of avarice, has doubtless been the mainspring of the slave-trade carried on during so many centuries between the negroes and European traders on the w. coast of Africa. Begun by the Portuguese as early as 1503, when N. slaves were first imported into the W. Indies, sanctioned by Ferdinand of Aragon 1511, and subsequently by Charles V., legalized in England under Elizabeth, and eventually practiced by every maritime nation of Europe, this infamous trade flourished under the sanction of law as late as the year 1807, when

it was happily abolished by act of parliament in Great Britain, and is now treated as piracy by almost every civilized nation. Even still, however, it is practiced by lawless men, notwithstanding the humane efforts of Great Britain, France, and the United States to suppress it; and the encouragement which it has given to the petty chieftains on the Slave Coast, and the country behind it, to enrich themselves at the expense of their fellow-countrymen, has contributed more than anything else to retard the progress of civilization in that part of Africa. 'The region mentioned,' says Prichard, 'has been the great seat of the exportation of N. slaves, and the tribes on the coast have been reduced to the lowest state of physical and moral degradation by the calamities and vices attendant on that traffic. Throughout Negroland, and especially this part of it, the inhabitants of one district in the interior, the dwellers on one mountain, are ever on the watch to seize the wives and children of the neighboring clans, and to sell them to strangers; many sell their own. Every recess, and almost every retired corner of the land, has been the scene of hateful rapine and slaughter, not to be excused or palliated by the spirit of warfare, but perpetrated in cold blood, and for the love of gain.'

The custom of polygamy prevails among all the N. tribes, and where these are constituted into nations or kingdoms, as in Dahomey, the sovereign has often as many as two or three thousand wives, whom he occasionally disposes of as presents to his chief officers and favorites.

The languages of the various nations and tribes of negroes are very numerous. Vocabularies of nearly 200 languages have been brought from Africa by the Rev. Dr. Koelle. 'A slight examination of these vocabularies,' says Edwin Norris, 'seems to show that there are among the N. idioms a dozen or more classes of languages, differing from each other at least as much as the more remote Indo-Germanic languages do.' To these N. idioms Dr. Krapf has given the name *Nigro-Hamitic Languages*. These may perhaps have affinities with some of the other African tongues, but not with any of the great well-defined families of languages. See further, on this subject, Dr. Prichard's *Natural History of Man*, especially a learned note by Edwin Norris, in that work, I. 323.

The condition and prospects of the Negroes, in the various countries into which they have been imported during the prevalence of the slave-trade, present a subject interesting and important. They are found in all the W. India Islands, to the number of about 3,000,000; in the United States, Brazil, Peru, and other parts of S. America; also in the Cape de Verde Islands, Arabia, Morocco, etc. In the British W. India Islands they were emancipated from slavery 1834, and in those belonging to France 1848. Slavery now exists nowhere in the W. Indies, with the exception of Cuba. In the United States, the 'colored persons' increased from 4,886,387

in 1870 to 6,577,497 in 1880. Many of the slaves were emancipated in the course of the unhappy civil war, all the negroes of secession masters being *declared* (1862, Sep. 22) emancipated by proclamation of Pres. Lincoln and act of the federal congress—the proclamation to take effect 1863, Jan. 1; at the same time that indemnities were promised to such loyal states as of their own accord decreed emancipation. Afterward, by formal amendment to the constitution, N. slavery in the United States was utterly destroyed, and the great problem which long and deeply exercised philanthropic minds has been solved—the N. having become a United States citizen at a fearful cost of blood and treasure to both his former possessor and his liberator. See SLAVERY.

The year 1879 was notable for a great stir among the blacks of the south, chiefly in the states on the Mississippi, the proportions and aim of which were those of an exodus in pursuit of better conditions of life, in Kansas or some other new western state. A point specially considered concerned measures to be taken in view of denial of the political rights of negro citizens in many localities. A conference at Nashville, May 6, took steps toward promoting emigration under the auspices of the National Migration Aid Soc., after conventions of colored citizens had been held at various prominent points.

The Nashville conference—with large attendance of delegates from Ala., Ark., Ga., Ind., Ill., La., Miss., Mo., Neb., O., Ore., Penn., Tenn., and S. Car.—adopted a report protesting against prejudices of color and caste; urged the states to adopt compulsory education, to have schools common to white and black, and, in case of colored schools only, colored teachers; asked for an industrial and technical school for colored youths, at Harper's Ferry or elsewhere, under colored regents; proposed an 'Amer. Protective Soc.' for the benefit of the blacks; resolved in favor of N. emigration to states giving security for their rights; and asked the U. S. govt. to give $500,000 in aid of such emigration. At Richmond, Va., 1879, May 19, a convention of colored citizens was held, similar in object and result. The exodus had begun early in 1879, and by Aug. 1 over 7,000 had arrived, needy and starving, in Kansas, and through the year the movement continued, aided to a considerable extent by a Kansas relief assoc. By 1880, Mar., some 25,000 had entered Kansas, and by the end of the year the number was 40,000. They came from Miss., Texas, Tenn., La., Ga., and Ala.—nearly all field hands, exceedingly ignorant; and about $150,000 were contributed for their relief. About 4,000 colored people were forwarded to Neb., Colo., Ill., and other states. In S. Car., 1881, Dec. 24–31, an exodus of as many as 5,000 colored laborers took place under a plan to settle in Ark. The same movement spread through central and southern S. Car. In 1883–85 there was a considerable emigration from the southern Atlantic states into Ark.; and 1886, Nov., a

very extensive exodus of N. laborers set in, from the hill-country plantations of Miss. to the river bottom or Yazoo country, where new levees, giving better protection from floods, promised safe occupation of 'the swamp,' the thousands of islands in which, very thinly populated, afforded the best land in the state for cotton. The heart of the lower Mississippi country, an immense region as large as Indiana, taking in parts of La. and Ark., was thus rapidly Africanized by negro immigration. In N. Car. an exodus began early in 1889, aided by emigration agents; and nearly 50,000 left the state, especially the eastern cos., destined for Kan., Ark., Texas, or Oklahoma, and a few to Miss. or La.

California passed an act, 1878, removing the words 'white male' from the state law regarding admission to the bar, thus permitting women and persons of color to qualify for practice of law. The question of the intermarriage of negroes and whites came before the U. S. district court, at Austin, Texas, 1877, and the decision of Judge Duval was that the old act of the state of Texas, 1858, prohibiting such intermarriage, was contrary to the constitution and laws of the United States, being in violation of the 14th and 15th amendments to the constitution, and of the first section of the Civil Rights Bill. In the state of Va., 1879, in the case of a negro and a white woman, his wife, convicted under the state laws against miscegenation, 1878, Mar. 14, and confined in the penitentiary, an application to the U. S. circuit court for a writ of *habeas corpus* was refused by Justice Hughes, on the ground that the U. S. courts have no jurisdiction over questions of marriage, and could not interfere with the operation of the law of Va. The question came up in the U. S. supreme court, touching the law of Ala. prohibiting the intermarriage of whites and blacks, and Justice Field delivered the unanimous opinion of the court to the effect that the law was not in violation of the constitution. In Fla. the new constitution framed 1885, June 9—Aug. 3, and ratified 1886, Nov. 2, had the provision that marriage between colored persons and white was forbidden.

In the case of two colored men tried in Cal. for the murder of a white man, 1878, a decision was made by Judge Rives of the U. S. district court that, under the Civil Rights Act, a colored man is not tried by his peers unless there are negroes as well as whites on the jury. The request of the defendants for a jury of both blacks and whites was denied by the state circuit court, and on petition to the U. S. court Judge Rives granted a new trial on the ground stated. In Va., 1879, the U. S. grand jury, under the instructions of Judge Rives, brought a bill of indictment against nine county court judges for violation of the Civil Rights Act in habitually refraining from placing colored citizens on the jury lists. At the same time, Judge Christian of the hustings court declared that he was enjoined by the law to select only such as he considered 'well qualified to serve as jurors,'

and that to place colored men on juries for the trial of colored persons, on the ground of their race, would violate the 14th amendment. The U. S. supreme court, 1880, Mar., rendered a decision sustaining Judge Rives and the indictment of state judges in Va. for refusing to put colored persons on jury lists. Justice Strong delivered the opinion, and Justices Clifford and Field dissented. In W. Va., 1879, in the case of Thomas Strander, colored, appealing to the U. S. court on the ground that the jury law of the state, under which he had been convicted of murder, was unconstitutional in excluding colored persons from jury service, the court decided that the law was unconstitutional. In Ky., 1880, in a case coming before the state court of appeals, a decision was given in conformity with that of the U. S. court in the Strander case. In the session of the supreme court of the U. S., beginning 1882, Oct., Justice Woods delivered the opinion of the court that a U. S. statute of 1871, designed to extend to negroes U. S. protection against violence of the 'Kuklux' sort, was unconstitutional, inasmuch as the amendments to the constitution, 13th, 14th, and 15th, and Section 2 of Art. IV., all were directed against state action, and left to each state criminal administration against individuals in any such matter as that of the Kuklux outrages aimed at by the U. S. statute. This decision appeared to strike at the Civil Rights Act passed by congress, 1875, to secure the equal rights of colored persons in theatres, hotels, and public conveyances; and in a case in Ky. a decision was given, in the U. S. district court, denying the right of a colored person to sue any private party for violation of the 14th amendment, because it was directed only against states, and not against individuals. If, however, the case should be one of an interstate character, as the action of a railroad passing from one state into another, there seemed no reason to doubt that the law of congress would have effect. It was in fact decided by the U. S. supreme court, 1877, that a law of La., enforcing the equal rights of colored and white in public conveyances, could not be executed against conveyances passing beyond the limits of the state, because congress alone had authority in any such interstate matter.

The Freedmen's Bureau, organized under an act of 1865, Mar. 3, to continue one year after the war, and by act of 1866, July 16, continued to 1868, July 16, and at this last date further continued another year, was withdrawn from operation in the several states 1869, Jan. 1, except as its educational department was continued. In all large towns and in many small places, schools were established, many of them summer vacation schools —(1868) 600, (1869) 1,200—to meet the eager desire of the blacks for instruction. Half a million scholars were in the bureau schools 1870, and as many more in other schools. At this date there were in operation 11 colleges, and 61 normal and 74 high schools for the higher education of colored youth; 1,280 school-houses had been erected,

at an average cost of $1,900; and $13,028,304 had been spent for all purposes of the bureau ($10,780,750 of it voted by congress), in addition to very large sums spent by other agencies (such as the Amer. Missionary Assoc., under direction of the Congl. churches, with 600 teachers in the field at one time), and including over half a million dollars sent from England in aid of colored education. A prolonged effort to secure large and continuous federal aid to schools, with special reference to the extreme needs of the negroes of the south, has been made without success. Pres. Grant, 1872, commended a bill for the purpose, as 'unanimously approved by the leading friends of education.' In 1874, Jan. 7, Mr. Hoar of Mass. presented in the house the claims of a bill proposing to aid education in all the states by the use of the proceeds of sales of public land, apportioning one-half of these, and the interest of the other half, on the basis of relative need for the first five years, as shown by comparative illiteracy, the object being to deal with the problem created in the south by negro (and other) citizenship. The movement has had the form in recent years of a bill offered by Mr. Blair, senator from N. H., in the 47th congress, fully considered and passed by the senate 1884, but not acted on by the house; again passed by the senate 1886, but not passed in the house; passed by the senate a third time 1888, but not taken up in the house; and finally, 1890, defeated in the senate by a small majority.

Virginia had, in 1879, of school age 202,842 colored to 280,849 white; of graded schools 33 colored to 95 white; of enrolled pupils 35,768 to 72,306 white; and of average daily attendance 21,231 colored to 65,771 white. The pop. of Va., 1880, was 631,827 colored to 880,376 white. In 1884 there was a school for every 70 white children, but only one for every 128 colored; yet in five years the number of colored in daily average attendance had trebled, while that of white had only doubled, and the increase of colored teachers had been equally notable. There were normal schools for colored teachers in the Richmond Institute, Richmond Normal, Boydton Institute, St. Stephen's Institute, Petersburg High School, Virginia Normal and Collegiate Institute, and the Hampton Normal and Agricultural Institute. The last of these was founded 1870, has from the first been under the able administration of Gen. Samuel C. Armstrong, as principal, and in 1872 was awarded by the state $95,000 of the proceeds of sales of land granted by congress in aid of agricultural and mechanical education. It has nearly 200 acres of land, fine buildings, and an excellent corps of teachers. (See HAMPTON NORMAL AND AGRICULTURAL INSTITUTE.) On the next to the last in the above list the state had spent (1884) $138,674, and made it an annual grant of $20,000; it had (1886) 162 academic students, (1887) 187. In 1888 the state had 2,115 colored schools to 5,154 white; 1,909 colored teachers to 5,373 white; 265,347 colored of school age to 345,-

024 white; 118,831 colored enrolled to 211,449 white; 64,422 colored in average daily attendance to 124,994 white. In N. Car. there were (1887) 212,789 colored to 353,481 white of school age, and 57·8 per cent. of the colored were enrolled in the schools to 57·2 in the white schools. In 1880 the colored of school age were 216,837 to 363,982 white. S. Car. had (1889) 69,892 colored in school to 59,357 white, and 1,622 colored teachers to 2,528 white. The Claflin Agricultural Coll. at Orangeburg, for colored youth, founded 1869, and later made a part of the state university, with an annual grant of $5,000 from the state, enrolled 946 in 1888, and 947 in 1889, with 55 teachers and superintendents. In Ga. the Atlanta University for colored youth had graduated 51 in 1879, and had 240 students, a grant of $8,000 a year from the state, 60 acres of very valuable land as an endowment, and a library of 4,000 vols. The state had (1880) 86,429 colored children at school, to 150,134 white. In 1882 the Paine Institute, to be located at Augusta, Ga., and to belong to 'the colored Meth. Episc. Church in America,' was provided for at the general conference of the Meth. Episc. Church, South, held at Nashville. In 1887 prejudice against the white teachers of Atlanta University, because they placed their own children in their classes of colored pupils, not only aroused much feeling, but caused the passage of an act denying state aid to any colored school having white pupils, or any white school having colored pupils; and after holding back the grant of $8,000 from Atlanta for two years, the $16,000 was voted to Morris Brown College, a purely colored institution of Fulton co.; also the $8,000 a year thereafter.

In Fla., 1886, there was organized a normal school at Tallahassee for the instruction of colored teachers, and another at Gainesville, each for two months; and the next year a permanent normal school for colored teachers was established at Tallahassee, and opened 1887, Oct., with 40 students. In 1888 the state had 512 colored schools and 620 colored teachers to 1,536 white schools and 1,793 white teachers. The pupils enrolled were 33,572 colored to 50,696 white.

Tenn. had (1888) 1,506 colored schools to 5,101 white; 1,640 colored teachers to 5,739 white; number of school age 161,393 colored to 478,621 white. Fisk University, at Nashville, founded 1866, under the auspices of the Amer. Missionary Assoc., is second to no school in the south providing for the higher education of the colored race. Ky. had (1887) 1,011 colored schools to 6,639 white; 107,144 colored children to 549,592 white; and appropriated for colored $203,573 to $1,044,224 for white. Under the amended school law of 1884, separate teachers' institutes and a separate state teachers' assoc. for colored teachers were established. A building for the colored normal school was dedicated 1887. Mo. had (1888) 547 colored schools to 9,272 white; 33,215 colored enrolled to 577,335 white; and of school age 47,452 colored to 804,978 white. Of the four normal schools supported by

the state, Lincoln Institute at Jefferson City is for colored students, to whom tuition is free.

In Ala., 1879, there were 40,092 colored children in school to 61,584 white. At Marion a separate normal school educated colored teachers, of whom the state had 1,423 to 2,722 white. Another school for colored teachers at Huntsville supplied the n. part of the state. At Marion a university also carried colored students through the higher departments of learning. In 1886 Ala. had 1,827 colored teachers, at the average monthly pay of $27.78, to 3,565 white, at $23.76. In 1887 Ala. provided for a university, to be called Alabama University and located at Montgomery, for higher education of colored youth. The state also appropriated $25,000 for an asylum for colored insane, and the same for a blind asylum for the colored. At Talladega the Talladega Coll. for both white and black, of either sex, was founded 1869, and, through the support of the Amer. Missionary Assoc., has developed into an effective and prosperous institution, with all departments of study—primary, academic, normal, and theological.

In Miss. the Alcorn University for colored youth, which had (1877) 48 students and four teachers, was made 1878 a state agricultural and mechanical college for the colored, and 1881 it had 160 students. Other schools for colored higher education were the normal school at Holly Springs and the Tougaloo University. The latter reported (1883) 74 male and 73 female students, with 13 teachers. The Alcorn had in 1883 graduated but 3 students since it was founded, few of its 100 students a year being able to make regular attendance, and most becoming teachers before completing the course. The attendance at Alcorn 1885 had reached 145, and the state gave it $11,000 a year. That at Tougaloo was 219, the Amer. Missionary Assoc. supporting it, except as to $3,000 of a state grant. The Holly Springs colored normal school had 140 students. In 1887 Tougaloo obtained additional buildings for both school and industrial purposes. In 1889 the Alcorn school had 216 students, and the Holly Springs school 171. The free-school system was introduced into Miss. in 1886, and greatly improved provision made for the equal education of all classes.

In La., 1880, with a colored pop. of 485,200 and white 455,063, a university for the higher education of colored boys was opened in New Orleans, at the expense of the state. The colored gain shown by the census of 1880 was 33 per cent. in La. to 26 for the whites. Of registered voters, 1882, La. had 85,451 whites and 88,024 colored; 16,913 of the white, and 76,087 of the colored, were illiterate. The university for colored youth at New Orleans had 400 students 1884. The state provided $10,000 a year for its support, with a faculty of both white and colored teachers. For the year 1888–9 the number of schools for colored was 665 to 1,304 for white; teachers 670 colored to 1,696 white; average daily attendance

31,686 colored to 47,759 white; and pupils enrolled 43,601 colored to 67,313 white.

The legislature of Ark., 1879, passed a memorial to congress, asking for the passage of a bill appointing three colored commissioners to inquire into the intellectual status of the colored people of the southern states. School provision in Ark. is on the most liberal scale for both colored and white, the available funds 1888 amounting to $1,683,910; and the only normal school in the state is one for colored teachers at Pine Bluff, with a large attendance.

In Texas, 1882, the Prairie View Normal School at Hempstead, Walker co., had trained 43 colored teachers; and for the University of Texas, munificently endowed with over $700,000 and 2,000,000 acres of yet unsold land, a branch for colored students was contemplated. The state held 11 summer schools for colored teachers to 31 for whites. Texas had (1887) 2,076 colored schools to 6,911 white; 2,891 colored teachers to 8,232 white; 113,150 colored enrolled in the schools to 295,510 white; and of school age 124,842 colored to 364,953 white.

In 1879, Feb., in a case brought before the U. S. circuit court, Judge W. B. Woods gave the decision of the court that separate schools for white and colored were not a violation of the constitution, but a matter within the discretion of the school authorities.

In N. Carolina the colored people organized, 1879, a state industrial assoc., which has held most creditable annual fairs, and done much to promote agricultural and mechanical pursuits. Gov. Jarvis, 1884, bore cordial testimony to the orderly and law-abiding character of the colored citizens of the state.

The statement is made that in Ga. the colored people owned (1885) 600,000 acres of land, and paid taxes on $10,000,000 of property; and that their taxable property through the whole south could be put at $100,000,000. The returns of negro property in Ga., 1883, were $6,589,876.

In Texas, 1889, Aug. 20, a state convention of colored men was held at Waco, which protested against various denials of rights, and declared of the negroes of Texas: 'We now own about 1,000,000 acres of land, and pay taxes on $20,000,000 worth of property. We have 2,000 churches, 2,000 Sunday-schools, 2,000 benevolent associations, 10 high schools, 2,500 common schools, 3,000 teachers, 125,000 pupils attending school, 25 lawyers, 100 merchants, 5,000 mechanics, 15 newspapers, and hundreds of farmers and stockmen.'

NE'GRO, RIO: see RIO NEGRO.

NE'GRO MIN'STRELSY: species of singing which originated among the negro slaves of the southern states, and has long been popular at public entertainments. The sentiment of the earlier of these negro melodies was of the most simple kind, the words mostly broken English, and the harmonies confined chiefly to two chords—the tonic and dominant. How the airs were composed has been a matter of curious inquiry. Some of them are believed to be broken-down and otherwise altered old psalm-tunes, which had been caught up by the more musical of the negro race. In some instances, the singing of the melodies is accompanied with grotesque gestures; the effect being to give the idea of good-nature and love of fun in the dark-skinned minstrels. Negro melodies may be said to have been made known by 'Dan' Rice, who first in New York, 1831, afterward in London, created a sensation by his singing of *Jim Crow*. Other songs followed, such as *Jim along Josey* and *Buffalo Gals;* and there was created a very characteristical music. Becoming popular, and addressed to fashionable audiences, negro minstrelsy now comprehends a large variety of songs, with pleasing airs, the whole much in advance of the original negro compositions, and therein also less characteristic. E. P. Christy, who began as conductor of a band of minstrels at Buffalo 1842, and who established himself in New York, 1846, was one of the introducers of these improvements. At first, his troupe were called the 'Virginia Minstrels,' afterward the 'Christy Minstrels.' His great success brought other troupes into the field. The minstrels usually are the negroes only in name, being white with faces and hands blackened. A company of educated negro *Jubilee Singers*, singing the more genuinely characteristic religious songs of the negro slaves in the United States, were successful in raising, in the United States and in Great Britain, a large sum of money for Fisk Univ., Nashville, Tenn., in which they were students.

NEG'ROPONT: see EUBŒA.

NE'GROS, ISLA DE: see PHILIPPINE ISLANDS.

NEGUNDO, *nē-gŭn'dō:* genus of trees of nat. order *Aceraceæ* (see MAPLE), differing from the maples chiefly in the diœcious flowers being destitute of petals, and in the pinnated ash-like leaves. The COMMON N., or ASH-LEAVED MAPLE, is a native of N. America, now frequent in Britain as an ornamental tree.

NEGUS, n. *nē'gŭs* [said to be after Col. *Negus*, in Queen Anne's time]: mixture of either port or sherry wine and hot water sweetened with sugar and sometimes flavored with lemon-peel and spices; favorite beverage in England.

NEHEMIAH, *nē-hē-mī'ah :* Jewish patriot : son of Hachaliah, probably of royal descent: mentioned in the Bible first as cup-bearer to Artaxerxes Longimanus in his palace at Shushan, about B.C. 444. Having learned the sad fate of the returned colonists in Jerusalem, he prevailed on the king, in whose court he seems to have had high place, to send him to his brethren there with full powers 'to seek their welfare.' For twelve years (444–432), he was untiringly engaged as 'governor' in works for their safety from within and without: refortifying the city walls, notwithstanding the hindrances and dangers that beset him on all sides; inducing people from the country to take up their permanent abode in the city, thus promoting its prosperity; and, above all, rekindling the flame of ancient piety and the enthusiasm for the observance of the Law in the hearts of the rough and untaught immigrants. He then returned to Persia, but not long afterward—within a period whose duration is not known—he had again to obtain leave from the king to return to Jerusalem for the purpose of abolishing the many abuses that had crept in during his brief absence. His new efforts in private and in public were chiefly against the foreign elements mingled with the people. He enforced the rigorous observance of Feast and Sabbath, and rearranged the Temple service in accordance with its primeval purity, procuring at the same time the means for its proper support by inducing the people to offer the tithes as of old. His second stay at Jerusalem seems to have lasted 10 to 15 years; but the dates, as gathered from circumstantial evidence only, are exceedingly vague. He seems to have lived to an old age, but the place and year of his death are unknown. Whatever may have been his part in the formation and redaction of the biblical canon, there can hardly be a doubt that, among the reformatory works undertaken by him, the collection, and perhaps the editing, of some of the books of the Old Testament must be included.

The book known under his name (in 13 chapters) is believed only partly his own work. Recent investigation ascribes to him only the first six chapters, part of the seventh, and the last chapter and a half; the rest being a compilation by other hands. Its style and character are very simple, free from anything supernatural or prophetic. Its guidance is important in mapping out the topography of the ancient Jerusalem. Its language resembles much that of Chronicles and Ezra, and is replete with Aramaisms and other foreign, partly Persian, words. Originally considered a mere continuation of the book of Ezra, it was by the Greeks and Latins at first called 'The Second Book of Ezra.' Gradually, however, it assumed its present independent position in the canon, after Ezra. It is supposed to have been written or compiled toward the end of N.'s life.

NEIF and NEAF, n. *nēf* [Icel. *hnefi;* Dan. *naeve,* the fist: Scot. *neff; neif* or *neive,* a hand]: in *OE.* and *Scot.,* a closed hand; a fist.

NEIF, n. *nēf* [OF. *neïf* or *naïf*, a born serf—from L. *natīva*, born]: in *OE.*, a female born in servitude; a female serf.

NEIGH, n. *nā* [AS. *hnægan;* Icel. *hneggia;* Low Ger. *nichen;* It. *nitrire*, to neigh: Scot. *nicher*, to neigh, to laugh coarsely—all imitative of the sound]: the cry of a horse: V. to cry as a horse. NEIGH'ING, imp.: N. the act of crying as a horse. NEIGHED, pp. *nād.*

NEIGHBOR, n. *nā'bėr* [AS. *neah-bur*, a neighbor—from AS. *neah*, nigh, near, and Dan. *boe;* Ger. *bauen*, to till, to cultivate: Dut. *boer*, a peasant, a boor; Ger. *nachbar*]: one who lives near to another; an intimate; in *Scrip.*, a fellow-being: ADJ. the adjoining; next: V. to live near to; to adjoin. NEIGH'BORING, imp.: ADJ. living or being near to. NEIGHBORED, pp. *nā'bėrd.* NEIGH'BORHOOD, n. *-bėr-hŭd*, place or part near; adjoining district; vicinity; proximity. NEIGH'BORLY, a. *-lĭ*, friendly; social; becoming a neighbor: AD. after the manner of a neighbor. NEIGH'BORLINESS, n. *-lĭ-nĕs*, state or quality of being neighborly.

NEILGHERRY, *nēl-ghĕr'ē* (properly NILGIRI, *nĭl-ghē'rē*), HILLS [Skr. *nila*, blue, and *giri*, mountain]: remarkable group of mountains in s. Hindustan, entirely isolated, with the exception of a precipitous granite ridge, 15 m. in width, which connects it with the high table-land of Maisur on the n.: lat. 11° 10′—11° 38′ n., long. 76° 30′—77° 10′. The shape of the group is that of a triangle, of which one side faces the dist. of Malabar on the west: greatest length, about 40 m.; average breadth, about 15 m. The base of the mountains is covered by a dense and unhealthful forest, swarming with wild animals, among which are the elephant and tiger; but in the higher regions of the Hills, wood is comparatively scanty. The surface of the group is undulating, rising, in the peak of Dodabetta, near the centre, to the height of 8,760 ft., the greatest height yet ascertained in India s. of the Himalayas. The Hills for the most part consist of granite, covered often to the depth of more than 10 ft. by a richly productive black soil. There are several morasses yielding peat which is used for fuel. The higher lands form a fine open grass country, covered with the vegetation of the temperate zone, and inhabited by a most remarkable tribe, the *Tudas* or *Toruvars* (herdsmen). This tribe numbers only about 2,000 persons. The men are tall and handsome, with Roman noses, fine teeth, and large, expressive eyes; the women are singularly beautiful. Their religion is Theism; they have no idols. Owing to their great elevation, the N. H. have a delightfully cool climate, and are much resorted to on this account by invalided Europeans. The principal station, and the only place on the Hills that deserves the name of a town, is Utakamand, in the centre of the Hills, 7,300 ft. above sea-level. Its climate is cold and damp during the monsoon; at other times it is intensely dry, and the mean annual temperature is 58°.

NEILGHER'RY NET'TLE (*Girardinia Leschenaultii*): plant of nat. order *Urticeæ*, nearly allied to the true nettles, and possessing in a high degree the stinging power common in them. It is frequent on all the higher ranges of the Neilgherry Hills. The bark yields a valuable fibre, which the natives obtain by first boiling the whole plant, to destroy its stinging properties, and then peeling the stalks. The fibre is of great delicacy and strength, and is worth £200 a ton in England. The cultivation of the plant is therefore thought likely to be renumerative.—Markham's *Travels*.

NEILL, *nēl*, THOMAS HEWSON: 1826, Apr. 9—1885, Mar. 12; b. Philadelphia. He studied two years at the Univ. of Penn., graduated from West Point 1847, and was an assistant prof. in the latter institution 1853–57. He was in the U. S. infantry on the frontier several years, and reached the rank of captain 1857. At the opening of the civil war he aided in organizing troops, was appointed col. of vols. 1862, served with distinction through the war, and was frequently promoted until he became brevet brig.gen. in the army and brevet maj.-gen. vols. He was in command 1869–71 at Governor's Island, N. Y., in frontier service against the Indians 1874–5, an officer at West Point, 1875–79, after which he was col. of a cavalry regt. till 1883, when he was retired for disability. He died in Philadelphia.

NEI'RA: see MOLUCCAS.

NEISSE, *nīs'ĕh*: town of Prussian Silesia, fortress of the second rank; in a broad valley on the Neisse, an affluent of the Oder, 30 m. s. w. of Oppeln. It consists of the town proper on the right bank, of the Friedrich's Town, and of the Preussen Fort on the left bank. It contains two great squares, has eight Catholic and two Evangelical churches, a hospital, theatre, etc. It carries on manufactures of arms, chemical products, and tobacco, and establishments for spinning and weaving are in operation. N. was formerly the chief town of a principality, and residence of a prince-bishop. Pop. (1880) 20,507.

NEITHER, a. *nē'thĕr* or *nī'thĕr* [AS. *nather*, neither—from *ne*, not, and Eng. *either*]: not the one or the other; not either: CONJ. not either; nor yet. *Note.*—The old spellings are *noither*, *nouther*, *nother*, whence the abbreviated form *nor*. The modern spelling was made under the influence of *either*. *Neither* is used to introduce two or more co-ordinate clauses, and as the correlative of *nor*, as, '*neither* John *nor* James could come.' *Neither* follows *not*—'Ye shall not eat of it, *neither* shall ye touch it.'

NEJD: see ARABIA: WAHABIS.

NEJIN, *nā-zhēn′*: ancient town of Little Russia, govt. of Tchernigov, on the Oster, an affluent of the Dnieper, about 80 m. n. e. of Kiev. It fell into the hands of the Lithuanians 1320, and of the Poles 1386, but was annexed to Russia 1654. Many of the inhabitants are descendants of Greek immigrants who settled here in the reign of Catharine II. The principal industry is the cultivation of tobacco, which is very extensive. The chief institutions are two monasteries, 25 churches, and a lyceum. Pop. (1880) 21,590.

NÉLATON, *nā-lâ-tōng′*, AUGUSTE: 1807, June 17—1873, Sep. 21; b. Paris. He studied under the famous surgeon Dupuytren, graduated 1836, became a surgeon in the leading hospitals of the city, was adjunct prof. to the Paris Faculty of Medicine 1839–51, and prof. of clinical surgery 1851–67. In the latter year he became a member of the Acad. of Sciences. In 1868 he was elected senator. He was employed as a surgeon by Napoleon III. He was a skillful operator, invented an improved process for the extraction of calculi from the bladder, and a probe for tracing the course of gun-shot wounds. In connection with Velpeau and other surgeons, he published *Rapport sur les Progrès de la Chirurgie* (1867), and *Éléments de Pathologie Chirurgicale* (5 vols. 1844–60, 2d ed. 1867–70). He died in Paris.

NELLORE, *nĕl-lōr′*: town of Brit. India, cap. of dist. of N., presidency of Madras; on an elevation on the right bank of the northern Pennar, 20 m. from its mouth, 95 m. n.n. w. from Madras. It is irregularly built, and the population in some places much crowded; but there are some good streets. The abundant supply of water contributes to the health of the town. N. was formerly an important fortress. It is a curious incident that, in the end of the 18th c., a pot filled with Roman gold coins and medals—chiefly of Trajan, Adrian, and Faustina—was found under the ruins of a small Hindu temple at Nellore.—Pop. (1881) 27,505.

NELSON, *nĕl′son*: town, capital of the province of N., in New Zealand; at the n. end of South Island, at the mouth of the Maitai, a small river, and at the head of a large bay called Blind Bay. The situation is very beautiful, on a flat, hemmed in by rugged hills, amid almost tropical luxuriance. The harbor, however, admits vessels of not more than 500 tons at high water, and this has much retarded the progress both of the town and the settlement. The centre of the town is a hill 40 ft. above the surrounding streets, and laid out as a square with an Episcopal church in its centre. N. is the seat of a bishop. The city was founded 1841. Pop. (1881) 6,764; with suburbs, about 10,000. Three newspapers are published here. The manufactures comprise cloth and leather

NELSON, *nĕl'son*, DAVID: 1793, Sep. 24–1844, Oct. 17; b. near Jonesborough, Tenn. He studied at Washington College, Va., and commenced a medical course in Danville, Ky., which he completed in Philadelphia. In the war of 1812 he was an army surgeon. On the return of peace he commenced practice in Jonesborough, where he was highly successful. He had professed religion in his youth, but afterward became a pronounced infidel. When convinced of his error, he again accepted Christianity, prepared himself for the ministry, and was licensed to preach 1825. After preaching three years in Tenn. he followed his brother as pastor of a Presb. church in Danville, Ky., where he remained two years. Removing to Mo. 1830, he founded Marion College, and was elected its president. He strongly favored emancipation, which made him unpopular in that vicinity, and caused his removal to Ill., 1836, where, a short distance from Quincy, he established an educational institution for young men. He was a frequent writer for the religious press, and published, 1836, *The Cause and Cure of Infidelity*, reprinted in England and elsewhere, and has passed through many editions. He died at Oakland, Ill.

NEL'SON, HORATIO, Viscount: greatest of Britain's admirals: 1758, Sep. 29—1805, Oct. 21; b. Burnham Thorpe, Norfolk, of which place his father, Edmund N., was rector. His mother's maiden name was Suckling, and through her he could claim collateral kinship with Sir Robert Walpole. As a child, he was feeble and sickly; and throughout life his small, frail, and attenuated frame seemed to consort poorly with the daring and impetuous spirit which 'stirred and lifted him to high attempts.' At the age of 13, he entered the royal navy, commencing his career in the *Raisonnable*, 64 guns, commanded by his uncle, Capt. Suckling. Then, even more than now, promotion in the first stages of the profession was determined by admiralty interest; and fortunately for him and for England, his uncle, shortly afterward becoming comptroller of the navy, was able to facilitate his rise. His promotion was nearly as rapid as it could be, and before he was quite 21, he had attained the rank of post-capt., which fairly opened the way for him to the higher honors of the service. Thenceforward for some years, he was nearly constantly employed in a variety of harassing services; yet even in these he gained brilliant reputation in professional circles. But with the advent of the war with revolutionary France, the time had come when he was to 'flame amazement' on the world by a series of noble deeds, in the lustre of which all other naval glory looks pale. In his obscurer years, he seems to have had prescience of a grand destiny: thus, on one occasion, he writes: 'One day or other I will have a long gazette to myself. I *feel* that such an opportunity will be given me. I cannot, if I am in the field of glory, be kept out of sight; wherever there is anything to be done, *there Providence is sure to direct my steps.*' In 1793, appointed

to the *Agamemnon*, 64 guns, he took a distinguished part, among other services, in the sieges of Bastia and Calvi, in Corsica, losing an eye at Calvi; and in the celebrated action of Sir John Jervis off Cape St. Vincent, with the Spanish fleet, it was mainly to a maneuver of extreme and masterly daring, executed by Nelson, in defiance of orders, that the commanding officer was indebted for the splendid victory and for the peerage with which it was rewarded. Though later, an expedition which N. commanded against Teneriffe had failed disastrously, with loss to himself of his right arm in the assault, it was on all hands admitted that everything had been done on the occasion which skill and valor could effect, and N., on his return to England 1797, was received with general acclamation. He was invested with the order of the Bath, and a pension of £1,000 a year was voted to him. Being next year intrusted with a fleet, he signalized this his first independent command of any magnitude by the stupendous victory of the Nile, memorable in naval annals as the completest annihilation of an enemy on record: see ABOUKIR. Finding the French fleet—to which his own was considerably inferior in force—skilfully moored so as to defy ordinary attack, he adopted the novel expedient of doubling on the enemy's ships, and was rewarded with success the most consummate. Of the French line of battle, two ships only escaped to be afterward captured; and it was considered that solely to a wound in the head, which in the heat of the action prostrated N., did even these owe their temporary safety. Honors from all quarters were now showered upon him; and in particular the gratitude and enthusiasm of his countrymen were signified by the title bestowed on him of Baron Nelson of the Nile, and a grant of £2,000 a year for his own life, and the lives of his two immediate successors. The Battle of the Nile indeed has been said to make a new epoch in British naval history. For his services immediately subsequent, in effecting the expulsion of the French from Naples, the Neapolitan king rewarded him with the dukedom of Bronte and a domain of £3,000 a year. These last honors, however, were in one sense dearly purchased. The single suspicion of a blot on his public fame is in regard of his relations with the corrupt court of Naples, and of certain questionable acts into which by these he was led. In his private character, the only flaw was his infatuated attachment to Lady Hamilton, wife of the English ambassador at Naples, a woman of questionable antecedents, but perilous fascination, with whom he was there thrown in contact. The influence which she now obtained over him, she continued to the end to exercise. Early in life he had married, and married happily. In his usual character and his proper nature, N. was generous as well as brave. It is not necessary to comment on the fact that to the charms of an impure adventuress he sacrificed, on his return to England, the wife to whom before he had been tenderly devoted.

His next magnificent naval exploit was the battle of Copenhagen 1801, in which, after a struggle of terrible severity, he shattered the naval power of Denmark, and with it the dreaded coalition against England of the three northern kingdoms. Never were the characteristic and heroic qualities of the man more brilliantly displayed than on this most trying occasion. In the moral courage to accept responsibility at all hazards, no man ever surpassed him. In the heat of the battle, his chief, Sir Peter Parker, in deadly anxiety as to the issue of what at a distance seemed a hopeless conflict, signalled him to discontinue action. 'Damn the signal!' said N., when this was reported to him. '*Keep mine for closer battle flying.* That's the way I answer such signals. Nail mine to the mast.' And with the certainty of professional disgrace and ruin staring him in the face in case of failure, he worked out his grand triumph.

Had N.'s services here ceased, his fame would still have been assured as the greatest of England's naval heroes. But a crowning glory awaited him. In the earlier part of 1805, glowing with fierce ardor and impatience, he had chased half round the world a French fleet of nearly double the force of his own, scared by the very terror of his name; and on the morning of the memorable Oct. 21 of that year, the desire of his eyes was satisfied, when in the Bay of Trafalgar he saw before him the combined navies of France and Spain moving to meet him in frank fight. Of the glorious consummation which followed, we need not speak in detail. Ere night, the power of France upon the seas was annihilated, and her threatened invasion of England had become an abortive dream. But N. was no more. He died as such men wish to die, amid the thunders of his mightiest victory.

The character of N. was, for a man of his greatness, unusually simple and transparent. He had singleness of aim and aspiration. Literally on fire with ardor and enthusiasm, he was driven by it imperiously in one direction. The greatest of sailors—he was a sailor and little else. In coolness, foresight, promptitude, instant, intuitive decision, and a daring which, even when it seemed at times to touch temerity, was yet regulated by reason, he has probably never been excelled. His nature was genial and humane. Southey's *Life of N.* is a model biography; there are lives also by Clarke, Pettigrew, Allen, and others. N.'s Dispatches and Letters were edited by Sir Harris Nicolas (7 vols. 1844–46).

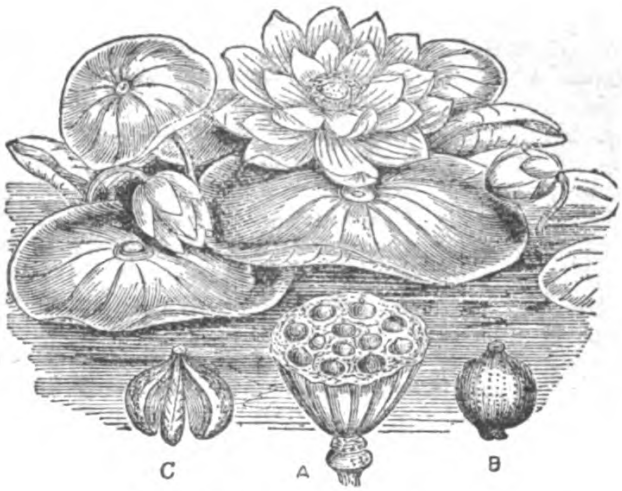
NELSON RIVER: large river in Canada, issuing from the n. end of Lake Winnipeg, and falling into Hudson's Bay, where it is called sometimes the Katchawan. Its course is only 400 m., but it discharges an enormous quantity of water into the sea. Port Nelson at its mouth is important as one of the points by which it has been proposed to establish direct water communication between the Canadian northwest and England; but the river is navigable for large steamers only some 70 or

80 m. The n. is the seaward continuation of the Saskatchawan (q.v.), which empties into Lake Winnipeg at its n. end about 50 m. from the point at which the N. issues from the lake.

NELSON, THOMAS: 1738, Dec. 26—1789, Jan. 4; b. York co., Va. He was educated in England. On his return to America 1761, he became a member of the Va. house of burgesses. He inherited a large fortune, and was noted for hospitality. He was prominent in the events which led to the Revolution, favored the formation of a military force 1775, and was elected, col. of a regt. He soon resigned his military office to enter the continental congress 1776. He had served in the provincial conventions of 1774, 5, 6, and in the latter, which had met to frame a constitution for Va., had offered a resolution that the delegates to congress from that province should propose that the colonies be declared independent. He signed the Declaration of Independence 1776, July 4. On account of ill health he resigned his seat in congress 1777. Later in the same year he was commander-in-chief of the Va. troops. He raised a cavalry force largely at his own expense; and was again in congress 1779, but illness soon compelled his retirement. When the state of Va. 1780 called for a loan of $2,000,000 to aid congress in prosecuting the war, he became security for a large sum, besides advancing money to pay two Virginia regiments to which the govt. was largely indebted. He was gov. of Va. 1781, commanded the state militia at the siege of Yorktown, and ordered the artillery to fire upon his own house, which he supposed to be occupied by Cornwallis. At the close of the siege Washington publicly thanked him for his 'activity, emulation, and bravery.' His last years were spent in retirement and poverty. For the vast sums of money that he had advanced to the govt., no return was ever made to himself or his family, and no stone was placed over his grave. He died and was buried in Yorktown, Va.

NELSON, WILLIAM: 1825–1862, Sep. 29; b. Maysville, Ky. At the age of 15 he entered the navy, in the Mexican war had command of a naval battery at the siege of Vera Cruz, in 1855 reached the rank of lieut., and three years later was in command of the *Niagara* when it carried back to Africa the blacks taken from the slave ship *Echo*. Early in the civil war he was promoted lieut. commander and had charge of the fleet of gunboats on the Ohio river. He left the naval to engage in the military service; and 1861, Sep. 16, was appointed brig.gen. vols. He formed various camps for the mustering in of Union troops in Ky., was in several battles, and was in command of a division of the army at Shiloh. He also commanded the Union forces at Louisville when that city was menaced by the Confederates; and 1862, July 17, was promoted maj.gen. vols. In a quarrel at the Galt house, Louisville, he was shot and killed by Gen. J. C. Davis.

NELUMBO, *nē-lŭm'bō* (*Nelumbium*): genus of aquatic plants included by some botanists in the nat. order *Nymphæaceæ* (q.v.); but by others constituted into an order, *Nelumbiaceæ*, differing in the lack of albumen in the seed, and in the distinct carpels, which are buried in the cavities of a large fleshy receptacle. The flowers and leaves are very similar to those of water-lilies. The species are few, and are found in warm parts of Asia, in n. Africa, and in N. America. They all are distinguished by the beauty of their flowers. *N. speciosum* is the



Lotus (*Nelumbium speciosum*).

A, the ripe receptacle of Nelumbium Speciosum; B, a seed; C, a seed, with the two cotyledons so separated as to show the large plumule which they inclose.

EGYPTIAN BEAN of Pythagoras, the *Lotus* (q.v.) of the Hindus, held sacred by them and by the people of Thibet. It is much esteemed and cultivated also in China, and elsewhere in the East, for its seeds, roots, leaf-stalks, and flower-stalks, all of which are eaten. It has been used as food by the Egyptians from remote antiquity. The seeds are in size and shape like acorns, with a taste more delicate than that of almonds. The root contains much starch, and *Chinese arrow-root* is said to be obtained from it. Slices of it are often served up at table in China. Great quantities are pickled with salt and vinegar, and eaten with rice. The powdered root makes excellent soup with water or milk. The flowers are generally rose-colored, seldom white. The ancient Egyptian mode of sowing this plant, by inclosing each seed in a ball of clay, and throwing it into the water, is practiced at the present day in India.—*N. luteum* is a N. American species, extending almost as far n. as Philadelphia; with yellow flowers. The seeds are sought by children, and were in demand among the Indians, and the farinaceous roots when boiled are agreeable food.

NEMALITE, n. *něm'ă-līt* [Gr. *nēma*, a thread; *lithos*, a stone]: fibrous hydrate of magnesia.

NEMATELMIA, n. *něm'ă-tĕl'mĭ-ă* [Gr. *nēma*, thread; *hĕlmins*, a worm]: term applied by recent zoologists to a large and important class of the division *Vermes* (see WORMS: ZOOLOGY). The worms belonging to this class are of more or less elongated cylindrical form. Their skin is thick and strong, and is usually wrinkled in such a manner as to give the body an annulated appearance, which, however, disappears if the animal is placed in water. The nervous system in the higher forms (as the *Ascarida*) consists of two lateral ganglia at the anterior extremity, which are united by a slender nervous ring, and from which two lateral nervous trunks proceed to the posterior part of the body; while in the lower forms no distinct nervous system can be recognized. No special organs of the senses are found; but a general sense of touch is probably present. The digestive organs are extremely simple. In one order (the *Acanthocephala*), no trace of an intestinal canal can be detected; in another order (the *Gordiacea*), there is a mouth, but no anus; while the higher forms are provided with mouth, intestinal canal, and anus. In the higher forms, a kind of vascular system is developed in the skin, in the shape of canals, in which the nutrient fluid is propelled by the movements of the body. No distinct respiratory organs can be detected; but in some genera there are glands whose object is not clearly known. These worms are unisexual; but the males are comparatively rarely found, and are always smaller than the females. With the exception of two families—the *Urolabea* and *Anguillulidæ*, or paste and vinegar eels—all the animals of this class are parasitic (see ASCARIS: TRICHINA: GUINEA-WORM: EELS in paste; STRONGYLUS); Carus said that 'probably all the nematelmia live as parasites, either during their whole lives or during certain stages of their existence.

The N. are sometimes termed *Round-worms*, just as the Platyelmia (tape-worms, flukes, etc.) are called *Flat-worms*. Usually, however, the term round-worm is restricted to the *Ascaris lumbricoides*, the most common of the human entozoa.

This class is divisible into three very distinct orders, viz.: the *Acanthocephala*, destitute of an intestinal canal; the *Gordiacea*, having an intestinal canal, but no anus; and the *Nematoidea*, having a perfect intestinal canal provided with two orifices.

NEMATHECIUM, n. *něm'ă-thē'shĭ-ŭm* [Gr. *nēma*, a thread; *thēkē*, a chest, a sac]: in *bot.*, a case containing threads, as in some species of Sphærococcus.

NEMATOCYSTS, n. plu. *něm-ăt'ō-sĭsts* [Gr. *nēma*, thread; *kustis*, a bag]: in *zool.*, the thread-cells of the Cœlenterata.

NEMATOIDEA, n. plu. *něm-ă-toy′dĕ-ă* [Gr. *nēma*, thread; *eidos*, resemblance]: highest order of the Nematelmia, and indeed of intestinal worms generally, inasmuch as they present a distinct nervous system, a complete intestine provided with mouth and anus, and distinct sexual organs. The history of their development is not fully known; but there is no reason to believe that these animals undergo any remarkable metamorphoses, although some perforate the intestinal walls, and become encysted in parenchymatous organs. The great majority of the N. are parasitic. The N. are divided by Carus into 12 families, all the members of which are known only in a parasitic state of existence, excepting certain genera of the first and second family.

Although the intestinal canal is the most common residence of these worms, some, as *Trichina spiralis*, are found chiefly in the muscles; others, as *Filaria medinensis*, in the subcutaneous cellular tissue; others in the kidneys, lungs, etc. See ENTOZOA. For further information, see Eberth's *Untersuchungen über Nematoden* (4to, 1863). NEMATOID, a. *něm′ă-toyd*, long and slender; thread-like. NEMATOPHORES, n. plu. *něm-ăt′ō-fōrz* [Gr. *phorĕō*, I carry]: in *zool.*, processes on the cœnosarc of certain of the Sertularida, containing numerous thread-cells at their extremities.

NEMEA, *nē′mē-a*: ancient name of a deep and well-watered valley of Argolis, in the Peloponnesus, between Cleonæ and Phlius, lying n. and s., two to three m. long, and more than half a mile broad. It possessed a sacred grove, with a magnificent temple of Zeus, and was famed for the *Nemean Games*, which took place four times in two Olympiads in an adjacent woody valley. This was one of the great national festivals of the Greeks, and, according to one legend, was founded by the seven princes who were combined against Thebes; according to another, by Hercules after his victory over the Nemean Lion. The games consisted partly of exercises of bodily skill and strength—such as chariot-racing, quoit-throwing, wrestling, running in armor, horse-racing, boxing, throwing the spear, and archery, and partly of musical and poetical competitions. The prize was originally a crown of olive twigs, afterward of parsley. We have 11 odes by Pindar in honor of victors in the Nemean Games.

NEMEÆ, n. plu. *něm′ĕ-ē* [Gr. *nēma*, thread]: in *bot.*, a name once applied to cryptogams, in allusion to their germination by a protruded thread, without cotyledons. NEMEAN, a. *něm-ē′ăn*, lengthened like a thread.

NEMEAN, a. *nē′mē′ăn*: pert. to *Nemea*, in anc. Greece, or to the games held there.

NEMERTES, *nē-mėr′tēz:* genus of marine *Annelida* type of a family, *Nemertidæ*, remarkable for the prodigious length which some of the species attain, which, in their most extended state, is 30 or 40 ft. But the animal which stretches itself out to this length, is capable of suddenly contracting itself to three or four ft. The structure is similar to that of leeches, but there is no sucker. These annelids feed upon mollusks by sucking them out of their shells. They generally lurk in the mud or sand of the sea-coast, and are sometimes drawn up with the nets or lines of fishermen. They twine themselves into knots and coils, apparently inextricable, but without any real entanglement. The life-history of the *Nemertidæ* is curious. The embryo has at first a ciliated, non-contractile, oval body; from which there issues a small actively contractile worm, leaving behind it the oval skin, and this worm grows to the size above mentioned. The larval state, however, exhibits a cleft with raised edges, which becomes the mouth of the perfect animal.

NEMERTIDA, n. plu. *nĕm-ėr′tĭ-dă* [Gr. *nēmĕrtēs*, unerring, true]: a division of the worms, usually called 'ribbon-worms.'

NEMESIS, n. *nĕm′ĕ-sĭs* [Gr. distribution of what is due —from *nemō*, I distribute]: a female Greek divinity: according to Hesiod, the daughter of Night; originally a personification of the moral feeling of right and a just fear of criminal actions—in other words, of the conscience. Afterward, when an enlarged experience convinced men that a Divine will found room for its activity amid the little occurrences of human life, N. came to be regarded as the power constantly preserving or restoring the moral equilibrium of earthly affairs—preventing mortals from reaching that excessive prosperity which would lead them to forget the reverence due to the immortal gods, or visiting them with wholesome calamities in the midst of their happiness. Hence originated the latest and loftiest conception of N., as the being to whom was intrusted the execution of the decrees of a strict retributive providence—the awful and mysterious avenger of wrong, who punishes and humbles evil-doers, and in particular the insolent and haughty. Hence, figuratively, N. signifies the retributive justice which pursues and overtakes the proud. N. was thus regarded as allied to Até (q.v.) and the Eumenides (q.v.). She was sometimes called Adrastēa and Rhanmusia, the latter designation being derived from Rhanmus, a village of Attica, where she had a temple. She was represented in the older times as a young virgin, resembling Venus; in later times, as clothed with the tunic and peplus, sometimes with swords in her hands and a wheel at her foot, a griffin also having his right paw upon the wheel; sometimes in a chariot drawn by griffins. N. is a frequent figure on coins and gems.

NEMOURS, *néh-môr′*, LOUIS CHARLES PHILIPPE RAPHAEL D, ORLÉANS, DUC DE: b. Paris 1814, Oct. 25; second son of Louis Philippe, King of France. He received a college education, was engaged in the siege of Antwerp, promoted marshal 1834, served in Algeria 1836–7, and was a great favorite with the soldiers. He became lieut. gen. 1837, married a princess of Saxe-Coburg 1840, and the next year returned to his command in Algeria. On the abdication of the king, 1848, he was, as the oldest living son, entitled to the regency, but fearing that such a course would lead to civil war, he did not press his claims. He aided the royal family to reach England, whither he followed. After the fall of Napoleon III. he was permitted to return to France and take his former rank in the army. He was placed on the list of retired officers 1879.

NEMPNE, v. *něm′nē* [AS. *nemnan*, to name]: in *OE.*, to name. NEMPT, pt. pp. *němpt*, named.

NENAGH, *nē′na*, locally *nē′nach:* market town of Tipperary county, Ireland, 95 m. s.w. from Dublin; assize town of the North Riding of Tipperary, and a place of more than ordinary pretensions in its public building. The ancient keep, called N. Round, is a striking object, and the court-house, jail, barrack, and union workhouse are imposing edifices. There is a free school, and three national schools. There are some manufactures, and considerable inland trade. Pop. (1881) 5,422, all being Rom. Catholics, except about 400 Prot. Episcopalians, and about 60 other Protestants.

NE′NA SA′HIB: see NANA SAHIB.

NENUPHAR, n. *něn′ū-fâr* [F. *nénufar;* It. *nenufar;* Pers. *noūfar*]: the great white water-lily of Europe; the *Nymphæa alba*, ord. *Nymphæā′cěæ.*

NEO, *nē′ō* [Gr. *neos*, new, fresh, recent]: the first part of many scientific compounds, signifying new; fresh; young; recent.

NEOCOMIAN, n. *nē′ō-kō′mĭ-ăn* [L. *Neocōmŭm*, the Latin name of Neufchatel, in Switzerland]: in *geol.*, a term applied to the Greensand or Lower Cretaceous formation.

NEOCOSMIC, a. *nē′ō-kŏz′mĭk* [Gr. *neos*, new, recent; *kosmos*, the world]: the new or recent world as occupied by man and his works, as distinguished from PALEOCOSMIC, the ancient world, on which the remains of man and his works do not appear.

NEOGENE, n. *nē′ō-jēn* [Gr. *neos*, new; *genos*, birth, race —*lit.*, new-born]: a term once applied by geologists to designate the Pliocene and Miocene tertiaries.

NEO-LATIN, a. *nē′ō-lăt′ĭn* [prefix *neo-;* Eng. *Latin*:] new Latin; term applied to the Romance languages, as having sprung directly from the Latin: also Latin as written by modern authors.

NEOLITE, n. *nē′ō-līt* [Gr. *neos*, new; *lithos*, a stone]: a laminar massive variety of talc, of a brownish or blackish-green color. NEOLITHIC, a. *nē′ŏ-lĭth′ĭk*, belonging to the polished stone age of the early history of man.

NEOLOGY, n. *nē-ŏl′ŏ-jĭ* [Gr. *neos*, new; *logos*, a word: It. *neologia:* F. *néologie*]: introduction or use of new words and phrases into a language; a new system of doctrines at variance with received interpretations of revealed truth; new method of theological interpretation; rationalism. The term was used first in Germany about the middle of the 18th c. to designate the early stages of rationalism, which set forth not so much a denial of the old teachings of Scripture as a new explanation of their bearings, relations, and meaning (see RATIONALISM). NEOLOGIC, a. *nē′ō-lŏj′ĭk*, or NE′OLOG′ICAL, a. *-ĭ-kăl*, pert. to neology. NE′OLOG′ICALLY, ad. *-lĭ*. NEOLOGIST, n. *nē-ŏl′ŏ-jĭst*, an innovator in language or religion; one who holds or introduces new doctrines at variance with received interpretations of revealed religion. NEOL′OGIZE, v. *-jīz*, to introduce new words or new doctrines. NEOL′OGIZING, imp. NEOL′OGIZED, pp. *-jīzd*. NEOLOGISM, n. *-jĭzm*, new words or phrases introduced into language; new views introduced into religion.

NEOPHYTE, n. *nē′ō-fīt* [F. *néophyte*—from Gr. *neoph′utos*, newly planted—from *neos*, new; *phutos*, grown; *phuton*, a plant, a creature]: a new convert or proselyte to the Christian faith in early times; a novice; a beginner: ADJ. newly entered into an employment.—The word *Neophyte*, in the sense of one recently converted to Christianity, is used by the apostle Paul (I Tim. iii. 6), and is explained by St. Gregory the Great as an allusion to 'their being newly planted in the faith' (Epp. b. v. ep. 51). It differed from Catechumen (q.v.) inasmuch as it supposed the person to have not only embraced the doctrines of the church, but also to have received baptism. The apostle, in the passage referred to, directs Timothy not to promote a N. to be a bishop of a church; and this prohibition was generally maintained as applied to bishops of dioceses, though occasionally disregarded in very extraordinary circumstances, such as those of St. Ambrose (q.v.). The duration of this exclusion was left for a time to the discretion of bishops; but several of the ancient synods legislated regarding it. The third council of Arles, 524, and the third of Orange, 538, fix a year as the least limit of probation. In the modern Rom. Cath. Church the same discipline is observed, and extends to persons converted not alone from heathenism, but from any sect of Christians separated from the communion of Rome. The time, however, is left to be determined by circumstances. The name N. is applied in Roman usage also to *newly-ordained priests*, and sometimes, though rarely, to the *novices* of a religious order.

NEO-PLATONISM, n. *nē′ō-plā′to-nĭzm* [Gr. *neos; Plato*]: eclectic and refined revival of the doctrines of Plato's philosophy, which had its headquarters at Alexandria in the 2d, 3d, 4th, and 5th c. NEO-PLATONIST, n. *-plā′to-nĭst.* The *Neo-Platonists* were an illustrious succession of ancient philosophers who claimed to found their doctrines and speculations on those of Plato. Strictly speaking, however, the Platonic philosophy—that is, in its original and genuine form—expired with Plato's immediate disciples, Speusippus and Xenocrates. Arcesilaus (q.v.) founder of the New Academy, and at a later period Carneades (q.v.) introduced and diffused a skeptical *Probabilism* (q.v.), which gradually destroyed that earnest and reverent spirit of intellectual inquiry characteristic of the great pupil of Socrates. The course of political events in the ancient world also largely assisted in bringing about the same result. The triumphs of the Roman power had been accomplished at the expense of national liberties, and had issued in a general deterioration of moral character, both in the East and in the West. Public men, especially, sought, above all things, material gratifications, and came to look on philosophy itself as only a more exquisite kind of luxury. It was quite natural, therefore, that Skepticism and Eclecticism should become the prevalent forms of philosophy. Besides, the speculations of the older philosophers were felt to be unsatisfactory. When men began to review the long succession of contradictory or divergent systems that had prevailed since the time of Thales the Milesian in the gray dawn of Greek history, a suspicion appears to have sprung up that reality, certainty, truth, was either not attainable, or could be attained only by selecting something from every system. Moreover, the immensely extended intercourse of nations, itself a result of Roman conquest, had brought into closest proximity a crowd of conflicting opinions, beliefs, and practices, which could not avoid an occasional confused amalgamation; and had in this way presented to view a practical eclecticism, less refined and philosophical indeed than the speculative systems of the day, but not essentially different from them. This tendency to amalgamation showed itself most prominently in Alexandria. Placed at the junction of two continents, Asia and Africa, and close to the most cultivated and intellectual regions of Europe, that celebrated city naturally became a focus for the chief religions and philosophies of the ancient world. Here, the East and the West, Greek culture and Oriental enthusiasm, met and mingled; and here, too, Christianity sought a home, and strove to quell, by the liberality of its sympathies, the myriad discords of Paganism. 'Greek Skepticism,' says Mr. Lewes, 'Judaism, Platonism, Christianity—all had their interpreters within a small distance of the temple of Serapis.' It is not wonderful, therefore, that a philosophy, which so distinctly combines the peculiar mental characteristics of the East and the West, as that promulgated by the Neo-

Platonists, should have originated in Alexandria. Yet, it is but right to notice, as does M. Matter in his *Histoire de l'Ecole d'Alexandrie*, that this philosophy soon ceased to have any local connection with the city. Its most illustrious representatives were neither natives of Alexandria nor members of the famous Museum, and had their schools elsewhere—in Rome, in Athens, and in Asia.

It is not easy to say with whom *Neo-Platonism* commenced. Scholars differ as to how much should be included under that term. By some it is used to designate the whole new intellectual movement proceeding from Alexandria, comprising, in this broad view, the philosophy, 1st, of Philo-Judæus and of Numenius the Syrian; 2d, of the Christian Fathers (Clemens Alexandrinus, Origen, etc.); 3d, of the Gnostics; 4th, of Ammonius Saccas and his successors. Others, again, would exclude the second of these (though the Alexandrian divines frequently Platonize); while a third party is disposed to restrict the application of the term to the fourth. The last of these modes of regarding Neo-Platonism is the one most current, and is perhaps the most convenient and definite; yet Bouterwek, Tennemann, Lewes, etc., agree in considering Philo-Judæus (q.v.) an Alexandrian Jew, and (in part) contemporary of Jesus Christ, as the first of the Neo-Platonists—that is to say, as the first who endeavored to unite the mysteries of Oriental belief with the dialectics and speculations of the Platonists. A similar course was at least partially pursued by the Christian Fathers of Alexandria, partly from a predilection for the philosophy in which they had been reared, and partly from a desire to harmonize reason and faith, and to make their religion acceptable to thoughtful and educated pagans; hence, they too may, not without reason, be classed with Philo, though their spirit and aim are distinctively and even strongly Christian. In Gnosticism, on the other hand, speaking generally, the lawless mysticism of the East predominated, and we see little either of the spirit or logic of Plato. They may therefore be dismissed from the category of Neo-Platonists. Regarding Philo-Judæus and the Alexandrian divines, it must be noticed that they wrote and taught in the interests of their own religion, and had no idea of defending or propagating a heathen philosophy. It is this which strikingly distinguishes them from the school founded by Ammonius Saccas; also from an independent group of pagan teachers and authors who likewise flourished in the 1st and 2d c. after Christ, and whose main object was to popularise and diffuse the ethics and religio-philosophic system of Plato, by allegorically explaining the ancient mysteries of the popular belief in harmony with the ideas of their master, but at the same time, blending with these many Pythagorean and Aristotelian notions. The best-known names of this group are Plutarch (q.v.) and Appuleius (q.v.). These men have a better claim to the title of Neo-Platonists than any of the others. They adhered far more closely

to their great master, and were, in fact—to the best of their ability—simply popular expounders of his philosophy. Living at a time when paganism was moribund, they sought to revive, purify, and elevate the faith in which their fathers had lived. Christianity, a young, vigorous, and hostile system, was rooting itself in the hearts of men deeper and deeper every day, and these disciples of Plato—tenderly attached to their ancestral religion—felt that something must be done to preserve from going out the fires that were feebly burning on the altars of the ancient gods.

But these commentators and expositors of Plato were not remarkable for their philosophical power; a fresh stream of life was poured into the old channels of Platonic speculation first by Ammonius Saccas (q.v.) and Plotinus (q.v.), and it is this fact which gives the school which they established its best claim to the exclusive title of *Neo-Platonist*. 'In no species of grandeur was the Alexandrian school deficient,' as M. Saisset justly observes: 'genius, power, and duration have consecrated it. Reanimating during an epoch of decline the fecundity of an aged civilization, it created a whole family of illustrious name. Plotinus, its real founder, resuscitated Plato: Proclus gave the world another Aristotle; and in the person of Julian the Apostate, it became master of the world. For three centuries it was a formidable rival to the greatest power that ever appeared on earth—the power of Christianity; and if it succumbed in the struggle, it only fell with the civilization of which it had been the last rampart' (Lewes's *Biog. Hist. Phil.* 259). The essence of *all* the Alexandrian speculations, that we have stated, consist in the blending of Platonic ideas with Oriental mysticism; the peculiarity of the *Neo-Platonists*, strictly so-called, lies simply in the novelty, audacity, and ingenuity of their reasonings. They aimed at constructing a religion on a basis of dialectics. They strove to attain a knowledge of the Highest, and the way in which they endeavored to accomplish this was by assuming the existence of a capacity in man for passing beyong the limits of his personality, and acquiring an intuitive knowledge of the absolute, the true—that which is beyond and above the fluctuations and dubieties of 'opinion.' This impersonal faculty is called *Ecstasy*. By means of it, man—ceasing, however, it should be observed, to be individual man, i. e., *himself*—can identify himself with the Absolute (or Infinite). Plotinus, in fact, set out from the belief that 'philosophy' (i. e., 'Absolute Truth') is possible only through the identity of the thinker—rather of the subjective thought—with the thing thought of, or the objective thought. This intuitive grasp or 'vision' of the Absolute is not constant; we can neither force nor retain it by an effort of will; it springs from a divine inspiration and enthusiasm, higher and purer than that of poet or prophet, and is the choicest 'gift of God.'

The god of Plotinus and the other Alexandrians is a

mystical Trinity, in the exposition of which they display a dialectical subtlety that even the most ingenious of the schoolmen never reached. The Divine Nature contains within it three Hypostases (Substances); its basis, if we may so speak, is called Unity, also poetically Primitive Light, etc. This Unity is not itself any *thing*, but the principle of all things; it is absolute good, absolute perfection; and, though utterly incapable of being conceived by the understanding, there is that in man that assures him that it—the incomprehensible, the ineffable, *is*. 'It has neither quantity nor quality; neither reason nor soul, it exists neither in motion nor repose; neither in space nor time; it is not a numeric unity nor a point; . . . it is pure Esse without Accident; . . . it is exempt from all want or dependency, as well as from all thought or will; it is not a thinking Being, but Thought itself—the principle and cause of all things.' To the skeptic this 'Primitive Light,' we are afraid, will not seem very luminous. From 'Unity,' as the primordial source of all things, emanates 'Pure Intelligence' (*Nous* —the *Vernunft* of modern German metaphysics); its reflection and image, that by which it is intuitively apprehended; from Pure Intelligence, in turn, emanates the 'Soul of the World' (*Psyche tou pantos*), whose creative activity produces the souls of men and animals, and 'Nature;' and finally from Nature proceeds 'Matter,' which, however, is subjected by Plotinus to such refinement of definition that it loses all its grossness. Unity, Pure Intelligence, and the World-Soul thus constitute the Plotinian Triad, with which is connected, as we have seen, the doctrine of an eternal Emanation, the necessity of which he endeavors to demonstrate by the most stringent logic. Human souls, whose source is the Pure Intelligence, are—by some mysterious fate—imprisoned here in perishable bodies, and the higher sort are ever striving to reascend to their original home. So Plotinus. when in the agonies of death, said calmly to his friends: 'I am struggling to liberate the divinity within me.'

The most distinguished pupil of Plotinus was Porphyrius (q.v.), who devoted himself mainly to expounding and qualifying the philosophy of his master. In him we see, for the first time, the presence of a distinctively anti-Christian tendency. Neo-Platonism, which can be properly understood only when we regard it as an attempt to place Paganism on a philosophical basis—to make the Greek religion philosophical, and Greek philosophy religious—did not *consciously* set out as the antagonist of Christianity. Neither Ammonius Saccas nor Plotinus assailed the new faith; but as the new faith continued to grow, and to attract many of the most powerful intellects of the age into its service, this latent antipathy began to show itself. Porphyry wrote against it; Iamblichus (q.v.), the most noted of his pupils, did the same. The latter also introduced a theurgic or 'magical' element into Neo-Platonism, teaching, among other things, that cer-

tain mysterious practices and symbols exercised a supernatural influence over the divinities, and made them grant our desires. Magic is always popular, and it is therefore not wonderful that Iamblichus should have had numerous followers. Ædesius succeeded to his master's chair, and appears to have had also a considerable number of disciples. To the school of one of them Emperor Julian belonged, whose patronage for a moment shed a gleam of splendor over Neo-Platonism, and seemed to promise it a universal victory. After a succession of able, but not always consistent, teachers, we reach Proclus (q.v.), the last great Neo-Platonist, who belongs to the 5th c., a man of prodigious learning, and of enthusiastic temperament, in whom the pagan-religious, and consequently anti-Christian, tendency of the Neo-Platonic philosophy culminated. His ontology was based on the Triad of Plotinus, but was considerably modified in detail; he exalted 'Faith' above 'Science' as a means of reaching the Absolute Unity; was a believer in Theurgy, and so naturally laid great stress on the ancient Chaldæan oracles, Orphic hymns, mysteries, etc., which he regarded as divine revelations, and of which he considered himself—as indeed, he was—the last great 'interpreter.' His hostility to the Christian religion was keen; in its success he saw only the triumph of a vulgar popular superstition over the refined and beautiful theories of philosophy; it was as if he beheld a horde of barbarians defacing the statues and records of the Pantheon. The disciples of Proclus were numerous, but not remarkable for talent. Perhaps the ablest of his successors was Damascius, in whose time Emperor Justinian, by an arbitrary decree, closed the schools of the heathen philosophers. 'The victims,' says Cousin (*Cours d'Histoire de la Philosophie Moderne*), 'of fierce retaliation, and of an obstinate persecution, these poor Alexandrians, after having sought an asylum in their dear East, at the court of Chosroes, returned to Europe A.D. 533, were dispersed over the face of the earth, and the most part extinguished in the deserts of Egypt, which were converted for them into a philosophic Thebais.' See Fichte, *De Philosophiæ novæ Platonicæ Origine* (Berl. 1818); Bonterwek, *Philosophorum Alexandrinorum ac Neo-Platonicorum, recensio accuratior* (Gött. 1821); Matter, *Essai Historique sur l'Ecole d'Alexandrie* (2 vols. Par. 1820); Simon, *Histoire de l'Ecole d'Alexandrie* (2 vols. Par. 1845); Barthélemy St. Hilaire, *De l'Ecole d'Alexandrie*, (Par. 1845); Lewes, *Biographical History of Philosophy* (1857); and Ueberweg's *History of Philosophy* (Transl. Hodder and Stoughton: 1872).

NEOSHO, *nē-ō'shō*, RIVER: river rising in Morris co., Kan. It flows toward the s.e. through several counties in this state, enters the Indian Territory, and turns toward the s. till it reaches the Arkansas near Fort Gibson. It is nearly 450 m. long and passes through a rich agricultural country. In many places along its banks bituminous coal is mined, and in portions of the region through which it flows fine building stone is obtained. It receives the Cottonwood river in Lyon co., Kan.

NEOTERIC, n. *nē′ō-tĕr′ĭk* [Gr. *neoterĭkŏs*, youthful—for *neos*, new]: one of modern times. NE′OTER′IC, a., or NE′OTER′ICAL, a. *-ĭ-kăl*, new; recent in origin; modern.

NEOZOIC, a. *nē′ō-zō′ĭk* [Gr. *nĕŏs*, new; *zōē*, life]: a term in geology, introduced by Edward Forbes to include all the strata from the Trias to the most recent deposits. They are generally divided into the two great groups of Secondary and Tertiary Rocks. This division is, however, quite arbitrary—the chief point of difference depending on the occurrence in the Tertiary deposits of species supposed to be the same as some still living. There is no paleontological nor petralogical break similar to that which exists between the Permian and Trias. Forbes, accordingly, suggested the obliteration of the division between the Secondary and Tertiary series, and the division of all geological time into two epochs—the Paleozoic and the Neozoic.

NEP, n. *nĕp* [L. *nepeta*]: the herb catmint; the *Nepēta catārĭa*, ord. *Labĭātæ*.

NE′PA AND NEP′IDÆ: see WATER-SCORPION.

NEPAUL, *nĕh-pawl′* or NIPAL, *nē-pâl′*: independent kingdom of Hindustan, on the s. slope of the Himalayas; bounded n. by Thibet, s. and w. by Brit. India, e. by Sikim, a protected state; long. 80° 15′—88° 15′ e.; 500 m. in length, by about 100 m. in average breadth; 55,000 sq. m. The kingdom is separated from the plains of India by the long narrow strip of land along the whole s. border, resembling an English down, but unhealthful, called the Terai. N. of this, and parallel with it, is the great forest of N., 8 to 10 m. broad. N. of this strip is a tract of hilly country, and still n. of that are two tracts of greater elevation, the first of which is mountainous, while the second might be appropriately called Alpine, if it did not comprise peaks, which, like Mount Everest and Dhawalagiri, attain almost twice the elevation of Mont Blanc. The principal rivers are the Kurnalli, the Gogra, the Rapti, the Gunduk with its tributaries, and the Kosi. The climate, most unhealthful in the Terai, is salubrious and pleasant in the hilly and mountainous districts, suggesting that of s. Europe. In the *Valley of N.*—the district surrounding the capital—the heat of Bengal, which is felt in the hollows, may be exchanged for the cold of Russia by ascending the slopes of the hills which inclose it. The soil is extremely rich and fruitful. Barley, millet, rice, maize, wheat, cotton, tobacco, sugar-cane, pineapple, and various tropical fruits are cultivated. Gold has not been found, but iron and copper mines are worked. The inhabitants are of numerous races, but consist mainly of two tribes—the Ghurkas, whose chief occupation is war, and the Newars, principally artisans. Trade is extensive. Education is in a low state. The literature of N. of the present time is frivolous and worthless; but there are rich remains from the ancient Sanskrit. The govt. is a despotism. The religion is a Buddhism, modified by Hinduism. The cap. is Khatmandu (q.v.).—Pop. of N. (1880) estimated 3,000,000.

NEPENTHACEÆ, n. plu. *nē-pĕn-thā'sē-ē* [Gr. *nēpĕnthēs*, removing all care, epithet of an Egyptian drug—from *ne*, not; *penthos*, grief, sadness]: the pitcher-plant family, an order of plants, having alternate leaves slightly sheathing at the base, and having a foliaceous petiole which forms an ascidium at its extremity, with the lamina in the form of a lid. NEPEN'THES, n. *-thēz*, only known genus of the nat. order of exogenous plants called *Nepenthaceæ*, consisting of herbaceous or half-shrubby plants with diœcious flowers, natives of swampy ground in India and China, remarkable chiefly for their leaves. Each leaf consists of a dilated foliaceous petiole, prolonged beyond its foliaceous part, as if it were the prolongation of the midrib of a leaf, and terminating in a

Pitcher Plant (*Nepenthes distillatoria*).

pitcher (*ascidium*), from which the name PITCHER PLANT has been generally given to the species of this order. The pitcher is terminated by a lid, which is regarded as the true blade of the leaf. The fluid found in these pitchers is a secretion of the plant itself. Insects often enter the pitcher, and are apparently there dissolved and absorbed; so that the N. would rank among the plants called 'Insectivorous' by Darwin. Pitcher plants (*N. distillatoria*) are frequent in hothouses.

NEPENTHE, n. *nē-pĕn'thĕ* [Gr. *nēpenthēs*—from *ne*, not; *penthos*, grief, sadness]: in *anc. Greece*, a magic potion or drug supposed to cause persons to forget their sorrow and misfortunes. Its invention was ascribed to the Egyptians; and in Homer, Helen of Troy appears as acquiring from them the art of compounding it, which was a secret. According to Diodorus Siculus the women of Thebes knew the secret. By some it is supposed to have been a preparation of opium.

NEPHELINE, *nĕf′ĕ-lēn* or *-lĭn*, or NEPHE′LITE, *-līt:* mineral appearing in columnar crystals, with 6 or 12 sides, sometimes with a pyramidal point, transparent when in small pieces, but in large blocks varying in color from a green tint to a brick red. It is a silicate of alumina and soda with traces of carbon and a little potash. It closely resembles the felspars, and in some volcanic rocks almost entirely takes their place. It was found first at Somma, near Vesuvius, 1797. It appears in the form of grains or crystals in volcanic rocks and of large crystals in metamorphic rocks. In the latter form it has an oily appearance, and is often called eleolite. This is found, in various combinations, in Litchfield, Me.; at Salem, Mass.; in the Ozark Mountains, Ark.; and in some of the rocks of Norway. The name of N., from a Greek word meaning a cloud, was given this mineral by Haüy, 1801, on account of its presenting a cloudy appearance when placed in acid.

NEPHE′LIUM: plant: genus of *Sapindaceæ:* see LITCHI.

NEPHEW, n. *nĕf′ū* [F. *neveu*—from L. *nepōtem*, a grandson, a descendant: Scot. *nevoy*, a nephew: Lap. *napat*, a sister's son: Skr. *napát*, a grandson, nephew]: the son of a brother or sister; fem. *niece*.

NEPHRALGIA, n. *nĕ-frăl′jĭ-ă* [Gr. *nephros*, a kidney; *algos*, pain of body or mind]: pain in the kidneys.

NEPHRIA, n. *nĕf′rĭ-ă* [Gr. *nephros*, a kidney]: Bright's disease of the kidneys. NEPHRITIC, a. *nĕ-frĭt′ĭk*, or NEPHRIT′ICAL, a. *-ĭ-kăl*, affected with disease of the kidneys. NEPHRIT′IC, n. a medicine for the cure of disease in the kidneys. NEPHRITIS, n. *nĕf-rī′tĭs*, inflammation of the kidneys. NEPHROID, a. *nĕf′royd* [Gr. *eidos*, resemblance]: resembling a kidney in form and structure. NEPHROTOMY, n. *nĕ-frŏt′ŏ-mĭ* [Gr. *tomē*, a cutting]: the operation of extracting a stone from the kidney.

NEPHRITE, n. *nĕf′rīt* [Gr. *nephros*, a kidney (see NEPHRIA)]: mineral frequently called Jade (q.v.) and of which Axestone (q.v.) is generally considered a variety. It is composed of silica, magnesia, and lime; is compact, with a coarse splintery fracture, very tenacious, sometimes translucent, greasy to the touch, and of green or greenish color. It is found in granite, gneiss, greenstone, etc., in many parts of the world. Very fine specimens are brought from Persia, Siberia, and China, and are known as *Oriental Jade*. The kind called *Indian Jade* is olive green, and strikes fire with steel; that from China is whitish, and does not strike fire. N. is used for ornaments. The Turks make it into handles for sabres and daggers. Many imaginary virtues were once ascribed to it, such as the cure of epileptic fits and of nephritic (Gr. *nephros*, kidney) complaints; hence its name.

NEPHROIDEOUS, a. *nĕf-roy′dĕ-ŭs* [Gr. *nephros*, a kidney; *eidos*, resemblance]: kidney-shaped; reniform.

NE PLUS ULTRA, phrase *nē plŭs ŭl'tra* [Lat. no further]: furthest point possible to be reached in anything.

NE'POMUC: see JOHN OF NEPOMUK.

NEPOS, *Nē'pŏs*, CORNELIUS: Roman historian: b. prob. in Verona, B.C. 1st c., though nothing is known of his life. He was friend of Cicero and Catullus. The only work of N.'s which has survived (if indeed it be his) is a series of 25 generally brief biographies of warriors and statesmen, mostly Greeks. These biographies are distinguished by the purity of their Latinity, the conciseness of their style, and their admirable exhibition of character; but sufficient care has not been exercised in examination of authorities, nor is the relative importance of things duly regarded. Until the middle of the 16th c., these biographies, on the strength of the titles given in the various MSS., were generally ascribed to Æmilius Probus, a writer who lived in the latter part of the 4th c.; but an edition was put out 1569 by the famous Dionysius Lambinus, who pronounced the so-called *Lives* of Æmilius Probus to be in reality the lost work of Cornelius Nepos, *De Viris Illustribus*. His weightiest argument is drawn from the excellence of the Latin, and the chastity of the style, so unlike the corrupt and florid language of the Decline. Many critics hold that these Lives ought to be regarded as an abbreviation of the work of N. by Probus. This hypothesis is not without its difficulties, but it is perhaps the least objectionable of any, and the one preferred by the majority of scholars. There are many editions, among which are those of Van Staveren (Leyd. 1773), of Tzschucke (Gött. 1804), and of Bremi (Zur. 1820); and the book is in general use as a school-book. It has been very frequently translated into English and other languages.

NEPOTISM, n. *nĕp'ŏ-tĭzm* or *nē'pō-tĭzm* [F. *népotisme*; It. *nepotismo*—from L. *nepōtem*, a grandson, a nephew]: undue preference or favoritism shown to relatives, especially in the public service.

NEPTUNE, n. *nĕp'tūn* [L. *Neptūnus*, in *anc. myth.*, the god of the sea]: remotest known planet of our solar system (see PLANETS). NEPTUNIAN, a. *nĕp-tū'nĭ-ăn*, pert. to the sea; formed by water—now applied to the stratified rocks only. NEPTUNIAN THEORY, old name for the theory which referred the formation of all rocks and strata to the agency of water. NEPTU'NIAN, n. *nĭ-ăn*, or NEP'TUNIST, n. *-tū-nĭst*, one who supports the neptunian theory, i.e., the aqueous as against the igneous theory of the origin of rocks.

NEPTUNE, *nĕp'tūn*: ancient Roman god of the sea. It is doubtful whether he was originally a marine deity, for the old Italians were the opposite of a maritime people; yet his name is commonly connected with *nato*, to swim; hence at an earlier period he may have borne another designation, afterward forgotten. When the Romans became a maritime power, and had grown ac-

quainted with Grecian mythology, they, in accordance with their usual practice, identified N. with the Greek god whom he most resembled. This was *Poseidōn*, also *Poteidan* (connected with *potos*, a drink, *pontos*, the sea, and *potamos*, a river.) Poseidon appears in his most primitive mythological form as the god of water in general, or the fluid element. He was son of Cronos (Saturn) and Rhea, and brother of Jupiter. On the partition of the universe among the sons of Cronos, he obtained the sea as his portion, in the depths of which he had his palace near Ægæ, in Eubœa. Here also he kept his brazen-hoofed and golden-maned steeds, in a chariot

Neptune.

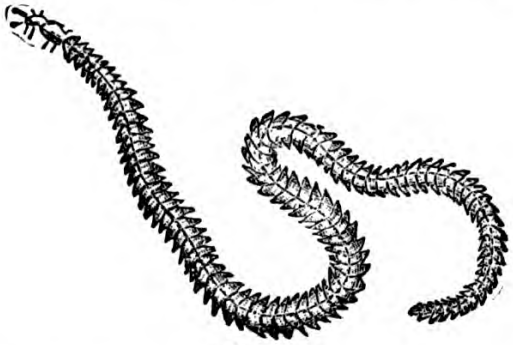
drawn by which he rode over the waves, which grew calm at his approach, while the monsters of the deep, recognizing their lord, made sportive homage round his watery path. But he sometimes presented himself at the assembly of the gods on Olympus, and in conjunction with Apollo, built the walls of Troy. In the Trojan war he sided with the Greeks; nevertheless he subsequently showed himself unfriendly to the great sea-wanderer Ulysses, who had blinded his son Polyphemus. He was believed also to have created the horse, and taught men its use. The symbol of his power was a trident, with which he raised and stilled storms, broke rocks, etc. According to Herodotus, the name and worship of Poseidon came to the Greeks from Libya. He was worshipped in all parts of Greece and s. Italy, especially in the seaport towns. The Isthmian games were held in his honor. Black and white bulls, boars, and rams were offered in sacrifice to him. N. was commonly represented with a trident, and with horses or dolphins, often together with Amphitrite, in a chariot drawn by dolphins, and surrounded by tritons and other sea-monsters. As befitted the fluctuating element over which he ruled, he is figured sometimes asleep or reposing, and sometimes in a state of violent agitation.

NERBUDDAH, *nĕr-bŭd'da:* river of Hindustan, rising in the Vindhya Mts., 3,000 to 4,000 ft. above sea-level, lat. 22° 40′ n., long. 81° 52′ e. It flows w., past Jabalpur (190 m. from its source), where the great depression between the Vindhya Mts. on the n. and the Satpura Mts. on the s., known as the Valley of the N., begins. The other principal towns on its banks are Hoshangabad, Burwani, and Barneh. At Hoshangabad it is 900 yards wide, and five to six ft. in depth. At Barneh it begins to expand into a wide estuary, and after flowing 30 m. further, it falls into the Gulf of Cambay. Entire length about 800 m., of which 55 m. are navigable for ships of considerable size.

NERCHINSK, *nĕr-chĭnsk':* important mining town of Russia, e. Siberia, in the Trans-Baikal Territory, on the Nercha, tributary of the Shilka; lat. 51° 58′ n., long. 116° 35′ e., 4,707 m. from St. Petersburg. It was founded 1658. The dist. of which N. is centre yields considerable gold yearly, with large quantities of silver, lead, and iron, and precious stones. The only tin-mines in the empire are worked here. The soil in the vicinity is fertile, and the climate mild and agreeable. Pop. (1877) 3,747.

NEREID, n. *nē'rē-ĭd* [Gr. *Nērĕĭs* or *Nērĕĭda*, a nymph of the sea]: one of the sea nymphs who were constant attendants upon Neptune; fabled to be the 50 daughters of Nereus, a sea-god, son of Pontus and Gê. None of the Nereids have an individual character except Thetis (q.v.), Amphitriti (q.v.)., and Galatea. NEREIDES, plu. *nē-rē'ĭdēz* or *nē-rē'ĭds*, a living family of sea-worms: see NEREIS. NEREITES, n. plu. *nē'rĕ-īts*, fossil tracks of marine worms, occurring in Silurian and other strata. The name was given first to a hypothetical genus to which were supposed to pertain the fossil remains of an annelid from Silurian rocks; but as no basis was found for such a supposed genus, the term N. took its present meaning. The track or trail thus named occurs on the surface of the laminæ of fine shales, over which, when it was soft, the creature moved, leaving a long and tortuous trail, which is generally found to terminate in a more defined representation produced apparently by the body itself, although every trace of it has disappeared. See ICHNOLOGY, fig. 2. NERITE, n. *nē'rīt*, a univalvular shell-fish of the genus NERITA, *nĕ-rī'tă*

NEREIS, *nē′rē-ĭs*, genus; and NEREIDÆ, *nē-rē′ĭ-dē* (or NEREIDES, *nē-rē′ĭ-dēz*), family of *Annelida;* having a long slender body, a distinct head, with tentacles and eyes; the whole body covered with tubercles, and the



Nereis.

gills lobed and tufted. They all are marine, and generally hide under rocks or in the sand. They swim actively, by rapid and undulating inflections of the body, and by the aid of numerous oars arranged along the sides; each formed of a stout footstalk, numerous bristles, and a flap. The proboscis is thick, strong, and armed with two jaws.

NERI, *nā′rē*, PHILIP DE, Saint: founder of the Congregation of the Oratory (q.v.) in the Rom. Cath. Chh.: 1515, July 21—1595, May 26; b. Florence, of a distinguished family. His character, even in boyhood, foreshadowed a career of piety and benevolence, and he was commonly known among his youthful companions by the name of 'good Philip.' On the death of his parents, he was adopted by a very wealthy uncle, with whom he lived at San Germano, near Monte Cassino, and who recognized N. as his destined heir. But he relinquished all these prospects, for a life of piety and charity, and having come to Rome, 1534, he there completed his philosophical and theological studies, winning universal esteem. Although he did not receive priest's orders till 1551, he had already been for years one of the most earnest and devoted in all pious works among the poor, the sick, and the vicious; and in 1550, with several friends, he established a confraternity for the care of poor pilgrims visiting Rome, and other houseless persons, as well as of the sick generally, which still subsists, and has had many distinguished members, but is noteworthy chiefly as the germ of the far more celebrated CONGREGATION OF THE ORATORY (q.v.), founded by St. Philip de N. in concert with his friends Baronius and Tarugio, both afterward cardinals, Sabriati, and some others. Besides the general objects above indicated, and the spiritual duties designed for the personal sanctification of the members, the main object of the Oratory was the moral instruction and religious training of the young and uneducated, who were assembled in chapels

or oratorios in evening meetings, for prayer and for religious and moral instruction. As a further means of withdrawing youth from dangerous amusements, sacred musical entertainments (thence called by the name *oratorio*) were held in the oratory, at first consisting solely of hymns but afterward partaking of the nature of sacred operas or dramas, except that they did not admit the scenic or dramatic accompaniments of these more secular compositions. Religious and literary lectures also formed part of N's. plan, and it was in the lectures originally prepared for the Oratory that, at the instance of N., the gigantic *Church History* of Baronius had its origin. This scheme of varied effort has resemblance to that of the Young Men's Christian Associations among Protestants of the present day. The pure and kindly personal character of N., his cheerfulness, his quaint humor, and a tinge of drollery which pervaded many of his sayings and doings, contributed to popularize his institute, which soon found great public favor. N. indeed had the reputation of sanctity and of miracles among his fellow-religionists; and, after 300 years, he may still be described as emphatically the popular saint of the Roman people. N.'s order, like his work, was utterly un-conventional, un-mediæval, un-monastic. Its object and its principles are thoroughly practical. Its organization, at the opposite extreme from that of the Jesuits, is republican—each congregation outside of Rome being self-governed: this piece of congregationalism was in accordance with N.'s special desire. He was canonized by Gregory XV. 1622. His only literary remains are his *Letters* (8vo. Padua, 1751); the *Constitutions* of his congregation, printed 1612; some short spirital treatises, and a few sonnets in the collection of *Rime Oneste*.

NERIAD, *nĕr-ĭ-ăd′*: town of Brit. India, presidency of Bombay and dist. of Kaira, on the route from Baroda to Ahmedabad, 38 m. n. w. from Baroda, on a feeder of the Sabarmati. It is the chief town of an extensive and well-cultivated tract, which produces much tobacco, and contains many prosperous towns and villages. Pop. (1881) 28,304.

NE′RIUM: see OLEANDER.

NERO, n. *nē′rō*, in the expression A NERO [*Nero*, Roman emperor, A.D. 54–68, infamous for his oppression and cruelties]: any bloody, relentless tyrant; one in power noted for extreme barbarity and savagery.

NERO, *nērō*, Roman Emperor: A.D. 37, Dec. 15—68, June 9 (reigned 54–68); b. Antium, on the coast of Latium; son of Cn. Domitius Ahenobarbus and of the younger Agrippa (q.v.), daughter of Germanicus Cæsar, and sister of Caligula. His mother becoming wife of Emperor Claudius, Claudius adopted him, A.D. 50, and his name, originally L. Domitius Ahenobarbus, was changed to Nero Claudius Cæsar Drusus Germanicus. After the death of Claudius, A. D. 54, his mother's daring and intrigue which had long been in exercise for his elevation to the throne, came to a successful issue; the Prætorian Guards, at the instigation of Afranius Burrhus, their prefect, declared him emperor, instead of Claudius's son Britannicus, and their choice was acknowledged both by the senate and the provinces. If the authorities may be trusted, the death of Claudius was by poison administered by the orders of his wife. His reign began with the semblance of moderation and good promise, under the guidance of Burrhus and his tutor Seneca the philosopher; and the first 5 years were called Nero's golden years; but the baleful influence of his mother, together with his own moral weakness and sensuality, frustrated their efforts, and he soon plunged headlong into debauchery, extravagance, and tyranny. He caused Britannicus, son of Claudius, to be treacherously poisoned at the age of 14, because he dreaded him as a rival, and afterward, A.D. 59, caused his own mother Agrippina (with whom he was latterly on bad terms) to be assassinated, to please his mistress Poppæa Sabina (wife of his principal boon companion Otho, afterward emperor), in order to marry whom he also divorced and afterward put to death his wife Octavia (aged 20), sister of Britannicus. N.'s mother had set her imperious will that knew not how to yield, against the will of the emperor—that in ruling him she might rule Rome. One of these savage natures must have destroyed the other, and the final power was in N.'s hands. The low servility into which the Roman senate had sunk at this time, may be estimated from the fact that it actually issued an address congratulating the hateful matricide on the death of Agrippina. N. himself, on the other hand, confessed that he was ever haunted by the ghost of his murdered mother. The affairs of the empire were at this time far from tranquil. In A.D. 61, an insurrection broke out in Britain under Queen Boadicea, which was, however, suppressed by Suetonius Paulinus. The following year saw an unsuccessful war against the Parthians in Armenia. At home, matters were not much better. The emperor was lampooned in verse; the senate and priesthood, alike venal, also were satirized by audacious malcontents; Burrhus, a valuable friend, died; and even Seneca, though not a great moralist out of his books, thought it

only decent to remove from court. In 64, July, a great conflagration in Rome reduced two-thirds of the city to ashes. N. himself is usually believed to have been the incendiary. It is said that he admired the spectacle from a distance, reciting verses about the burning of Troy, but many scholars are doubtful whether he really had any hand in it. At all events he laid the blame on the Christians—that mysterious sect, which, like the Jews, in the middle ages, were the cause of all otherwise inexplicable calamities—and persecuted them with great fury. Moreover, he rebuilt the city with great magnificence, and reared for himself on the Palatine Hill a splendid palace, called, from the immense profusion of its golden ornaments, the *Aurea Domus*, or Golden House; and in order to provide for this expenditure, and for the gratification of the Roman populace by spectacles and distributions of corn, Italy and the provinces were unsparingly plundered. A conspiracy against him failed A.D. 65, and Seneca and the poet Lucan fell victims to his vengeance. In a fit of passion he murdered his wife Poppæa, by kicking her when she was pregnant. He then proposed marriage to Antonia, daughter of Claudius, but was refused; whereupon he caused the too fastidious lady to be put to death, and married Statilia Messallina, after killing her husband. He also put to death or banished many persons distinguished for integrity and virtue. His vanity led him to seek distinction as a poet, a philosopher, an actor, a musician, and a charioteer, and he received sycophantic applauses, not only in Italy, but in Greece, to which, on invitation of the Greek cities, he made a visit in 67, entering as a competitor in the Grecian games and contests. But in 68, the Gallic and Spanish legions, and after them the Prætorian Guards, rose against him to make Galba emperor, and N. fled to the house of a freedman, Phaon, about four m. from Rome. The senate, which had been most subservient, declared him an enemy of his country, and the tyrant ended his life by suicide. This wretch had a taste for poetry, and was skilful in painting and modelling. The Roman populace, fascinated by his splendor, luxury, and extravagance, refused to credit his death, and long expected his re-appearance. The Roman men of letters, whose friends he had murdered, set him forth in literrature as a monster of evil; and these writers, combined with the Christians whom he had so terribly persecuted, to make his name the synonym of violent and fiendish wickedness—a type of the infernal; indeed, a form of the mysterious Anti-Christ who was to re-appear for the last great struggle of the powers of darkness with the kingdom of Christ.

NEROLI, n. *nĕr′ŏ-lĭ* [F. *néroli*]: the essential oil of orange-flowers. NEROLI CAMPHOR, n. in *chem.*, the camphor of orange-flowers, obtained by adding alcohol of 90 per cent. to neroli oil. It is insoluble in water and absolute alcohol, soluble in ether, melting at 50°.

NERVA, *nėr'va*, MARCUS COCCEIUS: Roman Emperor: A.D. 32–98, Jan. 27 (reigned 96–98); of a family belonging to Narnia, in Umbria. He twice held the honor of consulship before his election to the dignity of emperor after the murder of Domitian. He showed much wisdom and moderation, rectified the administration of justice, and diminished the taxes; but finding himself, at his advanced age, not vigorous enough to repress the insolence of the Prætorian Guards, he adopted, as son and successor, M. Ulpius Trajanus, then at the head of the army of Germany, who succeeded him on his death. After his decease, divine honors were rendered to him by his successor.

NERVE, n. *nērv* [L. *nervus;* Gr. *neuron*, a sinew, a nerve, the string of a bow: It. *nervo:* F. *nerf*]: one of the network of gray fibrous cords which are carried from the brain as their centre to all parts of the body, forming the organs of sensory and motor impulses (see NERVOUS SYSTEM): *fig.*, fortitude; strength; firmness of mind or body; courage; manliness; in *bot.*, one of the fibrous bundles of the combined vascular and cellular tissue ramifying through leaves, etc., like veins or nerves in the animal structure: V. to give strength or vigor to; to strengthen. NERVING, imp. NERVED, pp. *nėrvd.* NERVE'LESS, a. without strength or nerve. NERVINE, n. *nėr'vĭn*, anything that affects the nerves: ADJ. good for the nerves. NERVOUS, a. *nėr'vŭs* [F. *nerveux*, sinewy—from L. *nervōsus*, full of nerve—*lit.*, sinewy]: relating to the nerves; having the nerves affected; easily agitated; marked by strength in sentiment or style, as a writer; in *bot.*, full of nerves; having the nerves prominently developed. NER'VOUSLY, ad. *-lĭ.* NER'VOUSNESS, n. *-nĕs*, the state or quality of being nervous; weakness or agitation of the nerves. NERVURES, n. plu. *nėrv'ūrz* [F. *nervure*, nerve or band]: the veins of leaves; the horny tubes which expand the wings of insects. NERVATION, n. *nėrvā'shŭn*, in *bot.*, the character or disposition of the nerves of a leaf or other foliaceous appendage. NERVE-CELL (see CELL-THEORY: HISTOLOGY). NERVOUS SYSTEM, the nerves spread over the body taken collectively, the office of which is to connect the organs of sense, and muscles, etc., with the brain (see below). NERVOUS TEMPERAMENT, a condition of body-generally characterized by thin skin, small muscles, quickness of motion, and a great excitability of the nervous system: see TEMPERAMENT.

NERVOUS DISEASES, OBSCURE; AND NERVOUSNESS: anomalous nervous affections; a great variety of forms (often evanescent) assumed by diseases of the nervous system. For the most important and definite nervous diseases—e.g., chorea, convulsions, epilepsy, hydrophobia, hypochondriasis, hysteria, neuralgia, paralysis, spasms, and tetanus, see the various titles.

The obscure nervous affections now to be considered are almost confined to women, and most of them may be regarded as modified forms of hysteria. *Simulated Pregnancy*, or, as the French physicians term it, *Nervous Pregnancy*, is an affection not very rare. The abdomen gradually enlarges, the catamenia are suppressed, and sickness, enlargement of the breasts, with the other symptoms of pregnancy, supervene (as far as they can be recognized by the non-professional observer, and it is only the non-appearance of the infant at the expected period that gives intimation of the true nature of the case. The diagnosis of such a case is extremely difficult, and the most celebrated accoucheurs have been deceived. We commence with this extreme instance, as singularly illustrative of the power which a perverted action of the nervous system may impress upon certain persons. The somewhat allied cases in which patients persist in fancying themselves pregnant in opposition to the opinion of their medical adviser (as the well-known case of Queen Mary, so admirably drawn by Froude), are far more numerous. The intestines are often implicated in cases of a deranged condition of the nervous system. The excretion of gas from the intestinal mucous membrane is often much increased in the class of patients commonly called nervous. The rattling sounds produced by the movement of the gas—scientifically known as *bomborygmi*—are sometimes so loud as to prevent the patient from entering into society with comfort; and sometimes the mere fear of the occurrence of these sounds is sufficient to induce the sounds. A depraved appetite, scientifically known as *pica*, is a common symptom of deranged nervous system both in chlorotic young women, in whom the catamenial discharge is not well established, and in pregnant women: see MORBID APPETITES. The not very rare cases of fasting women and girls belong to the same category. All these cases, however, ultimately undergo detection.

Dr. Parry and other physicians have described cases of morbid sensibility of the mucous membrane of the pharynx, in which the muscles of the larynx are called into violent action if the patient takes a sip of water or other fluid. Such cases so strongly simulate hydrophobia, that they are described as hysteric hydrophobia.

Passing on to the special modifications which an abnormal state of the nervous system impresses on the organs of circulation, we have nervous palpitation of the heart, which may readily be distinguished from palpitation dependent on change of structure by due attention to symptoms. There is a peculiar form of abdominal

pulsation, due solely to nervous influence, which may frequently be felt on pressing the hand on the patient's abdomen. It has in many cases been mistaken for aneurism.

The nervous symptoms implicating the respiratory organs are not only the most common of any, but are alarming and urgent, and may be readily mistaken for indications of serious inflammatory or organic disease. Nervous asthma, supposed to depend on a spasmodic constriction of the bronchial tubes, is too well known to require comment. Women suffering from deranged condition of the nervous system sometimes present symptoms of what may be termed nervous catarrh—such as a copious flow of tears, free discharge from the nostrils, and constant sneezing. Such cases are often periodic. They may be treated with preparations of iron, and are sometimes at once checked by a pinch of snuff. There are various forms of cough due mainly to nervous irritation, the difference in the character of the cough probably depending on the spot which is the seat of irritation. Thus, we hear of *spasmodic* cough, which is often accompanied by much straining and convulsive agitation, and somewhat resembles whooping-cough; *ringing* cough, accompanied by dyspnœa and hoarseness, or loss of voice; *barking* cough, often arising from irritation of the ovaries, etc. Such coughs as these are aggravated by depleting measures, ordinary cough medicines, etc., and usually disappear under the use of tonics.

The nervous affections of the motor system are conveniently grouped by Dr. Laycock under three heads—(1) the first including those cases in which there is paralysis or spasm without distortion; (2) those in which distortion follows cessation of muscular equilibrium, as in the various forms of club-foot; and (3) paroxysmal affections. The best example of the *first* class is hysterical paralysis of the lower extremities, of which Sir Benjamin Brodie long ago wrote as follows: 'I have known not a few, but very numerous instances of young ladies being condemned to the horizontal posture, and even to the torture of caustic issues and setons, for several successive years, in whom air, and exercise, and cheerful occupations would probably have procured a cure in the course of a few months.' For a notice of such cases as these, see HYSTERIA. Paralysis of a lateral half of the body, or of one limb only, may also be merely a manifestation of hysteria. The *second* class is well illustrated by the following case, reported by Mr. Shaw. A young lady who had suffered from a train of symptoms indicative of a disturbed nervous system, had the ankle so turned round that she walked on one side of the foot. The knee was also bent outward, and the spine was becoming distorted. Sir Charles Bell, who saw her in consultation, regarded the case as one of wilful deception, and in a year's time his diagnosis was completely established, scarcely any trace of lameness being apparent. Many of the joints—as the knee, hip, etc.—may be the seats of purely ner-

ralgic symptoms, which so closely simulate organic disease of the cartilages, as to lead to the removal of the limb. Carmichael, Brodie, and others have recorded cases in which this terrible mistake has been made by experienced surgeons. Spinal irritation, or spinal tenderness, is a mysterious affection, whose diagnostic value is not very definite, as it may arise from a large number of distinct conditions, e.g., disease of some part of the spinal cord, uterine disease, chronic disease of the intestinal viscera, etc.

One of the most anomalous affections of the nervous system ever recorded is described by Mr. Holden in *St. Bartholomew's Hospital Reports*, 1867, III. 299–305. The patient was a bright-looking boy between 12 and 13 years old, who, as he lay reading in bed, presented every appearance of perfect health: all that he complained of was what he called his 'bump,' which was about the size of a hen's egg, and lay on the right side of the neck, just above the shoulder. If the 'bump' were touched, even most gently, the boy instantly lost all consciousness, and became deaf, dumb, and blind, while his body became arched like a bow, and was supported only by the back of the head and the heels, while his arms were rigidly extended. He might be pinched or pricked, but showed no sign of sensation. After remaining in this state somewhat less than a minute, he drew a deep, long breath, which was followed by a deep sigh. Instantly the spasm ceased, and the body fell, seemingly lifeless, on the bed. After two similar sighs, which occurred in a few seconds, the boy awoke as if from a profound sleep, and in a few minutes was none the worse for what he had gone through. Whenever the bump was touched—even when the boy was fast asleep—the same phenomena occurred. (It was found that, on touching the backbone in the dorsal region, the same series of events happened.) By continuous gentle manipulation of the bump, the boy was kept unconscious 20 minutes. Another and even more remarkable phase of the boy's affection was his crowing and barking fit, which took place every day at the same time, almost to a minute. See the Reports above cited.

As to *Nervousness* (part of the title of this article) it is a word pertaining to the vocabulary rather of the patient (pre-eminently of the female patient) than of the physician. It is usually understood to indicate a condition of which a restless mobility, with or without undue excitability of the nerves of sensation, is the chief characteristic. See further, Dr. Laycock's various works; and Romberg *On Diseases of the Nervous System.*

NERVOUS SYSTEM, THE: term describing collectively the nerves spread over the body in all except the lowest classes of animals. In all *vertebrated animals* the N. S. is composed of two distinct portions or systems—viz., the *cerebro-spinal* and the *sympathetic* or *ganglionic*.

The *cerebro-spinal system* includes the brain and spinal cord (which form the *cerebro-spinal axis*), and the cranial and spinal nerves. It was termed by Bichat the nervous system of animal life, and comprises all the nervous organs concerned in sensation, volition, and mental action.

The *sympathetic system* consists essentially of a chain of ganglia connected by nervous cords, extending from the cranium to the pelvis, along each side of the vertebral column, and from which nerves with large ganglionic masses proceed to the viscera and blood-vessels in the cavities of the chest, abdomen, and pelvis. It was termed by Bichat the nervous system of organic life, since it seems to regulate—almost or quite independently of the will—the due performance of the functions of the organs of respiration, circulation, and digestion.

For the essential parts of the *cerebro-spinal axis*, see BRAIN: CEREBRUM AND CEREBELLUM: SPINAL CORD. The brain and spinal cord are covered and protected by three membranes or *meninges*, as they are frequently termed—viz., the *dura mater*, the *arachnoid*, and the *pia mater*. The *dura mater* is a strong fibrous membrane, which supplies the cranial bones with blood in early life, and adheres firmly to their inner surface. It is less closely attached to the bony walls of the spinal canal. Inside the cranium it gives off processes (such as the *falx cerebri*, *tentorium cerebelli*, and *falx cerebelli*) which divide and support different parts of the brain; it gives a strong fibrous sheath to every nerve; and by splitting into two layers at certain points, it forms receptacles for venous blood, which are termed SINUSES (q.v.). The *arachnoid* (so called from its being supposed to be as thin as a spider's web) is a serous membrane, and, like all serous membranes, is a closed sac, consisting of a parietal and a visceral layer. The parietal layer adheres to the inner surface of the *dura mater*, to which it gives a smooth, polished appearance; while the visceral layer somewhat loosely invests the brain and spinal cord, from direct contact with which, however, it is separated by the intervention of the *pia mater* and some loose areolar tissue. In most regions there is an interval between the visceral layer of the *arachnoid* and the *pia mater*, which is called the *sub-arachnoid cavity*, and is filled during life by the *cerebro-spinal fluid*. This fluid, which varies in quantity from two to ten ounces, keeps the opposed surfaces of the arachnoid in close contact, and affords mechanical protection to the nervous centres which it surrounds, and guards them against external shocks. It is accumulated in considerable quantity at the base of the brain, where it serves for the protection of the large vessels and nerves situated there. In fracture of

the base of the skull, the draining away of this fluid, often in very large quantity, through the external auditory meatus, is often one of the most significant symptoms. It is doubtless secreted by the *pia mater*, the immediate investing membrane of the brain and spinal cord. This membrane consists of minute blood-vessels, held together by an extremely fine areolar tissue. It dips down between the convolutions and fissures of the brain, and is prolonged into the interior, forming the *velum interpositum* and the choroid plexuses of the fourth ventricle. It is by means of this membrane that the blood-vessels are conveyed into the nervous substance.

The nerves connected with the cerebro-spinal centre or axis are described usually in two classes—the *spinal* and the *cranial* or *encephalic*. The former class consists of all those which arise from the spinal cord, and emerge from the spinal canal through the intervertebral foramina; while the latter includes those which arise from some part of the cerebro-spinal centre, and emerge through foramina in the cranium or skull.

Fig. 1.—Roots of a Dorsal Spinal Nerve, and its union with the Sympathetic:

c, c, anterior fissure of the spinal cord; *a*, anterior root; *p*, posterior root with its ganglion; *a'*, anterior division or branch; *p'*, posterior branch; *s*, sympathetic; *e*, its double junction with the anterior branch of the spinal nerve by a white and a gray filament, the respective natures of which are subsequently described.—From Todd and Bowman.

The *Spinal Nerves* (exclusive of the spinal accessory nerve, which, from the fact that it emerges from the skull, is ranked usually among the cranial nerves) are 31 on either side, there being a pair for each pair of intervertebral foramina (for whose formation see SKELETON: SPINAL COLUMN), and for the foramina between the atlas (the first or highest vertebra) and the occipital bone at the base of the skull. Every spinal nerve arises from the cord by two roots, an anterior and a posterior, of which the latter is distinctly the larger. Each root passes out of the spinal canal by a distinct opening in the dura mater. Immediately after its emergence, a ganglion is seen on the posterior root, and in the anterior surface

of this ganglion the anterior root lies imbedded. Just beyond the ganglion, but not at all previously, the nervous fibres of both roots intermingle, and a compound nerve results. The trunk thus formed separates immediately after it has passed through the intervertebral canal into two divisions—the anterior and posterior—each of which contains filaments from both roots, and possessing, as shown below, perfectly different functions. These divisions, of which the anterior is considerably the larger, proceed to the anterior and posterior parts respectively, of the body, and are distributed to the skin and the muscles. The anterior branch communicates with the sympathetic nerve, as shown in the figure. For the mode of connection of the roots of the nerves with the cord, see SPINAL CORD. These nerves are arranged in classes, according to the regions of the spine in which they originate; hence we speak of eight cervical, twelve dorsal, five lumbar, and six sacral nerves on either side.

The discovery of the separate functions of the anterior and posterior roots of the spinal nerves, which has been characterized as the first important step toward a right understanding of the physiology of the nervous system, was made by Sir Charles Bell, though there is reason to believe that Magendie, without any knowledge of Bell's experiments, arrived at similar conclusions at nearly the same time. The original experiments consisted in laying open the spinal canal in rabbits, and irritating or dividing the roots of the spinal nerves. It was observed that irritation of the anterior roots caused muscular movement, and that the posterior roots might be irritated without giving rise to any muscular action; while division of the posterior roots did not impair the voluntary power over the muscles. Hence it was inferred that the anterior roots were motor (or conveyed motive power to muscles), and the posterior roots not motor; but it was not fully determined what degree of sensibility remained in parts supplied from the divided roots. Numerous physiologists arrived at similar results to those of Bell; but the most conclusive experiments are those of Müller, who operated on frogs, in which, from the great width of the lower part of the spinal canal, the roots of the nerves can be exposed with great facility. In these experiments, it was found that irritation of the anterior root always excited muscular contraction, while no such effect followed irritation of the posterior root; that section of the anterior root caused paralysis (or loss of power) of motion, while section of the posterior root caused paralysis of sensation; and that when the anterior roots of the nerves going to the lower extremity were cut on one side, and the posterior roots on the other, voluntary power without sensation remained in the latter, and sensation without voluntary motion in the former. The obvious conclusion from these experiments is, that the anterior root of each spinal nerve is *motor*, and the posterior *sensitive*. (In place of the terms *sensitive* and *motor*, the terms *afferent* and *efferent* are now fre-

quently used. The functions of the nerves being to establish a communication between the nervous centres and the various parts of the body, and *vice versâ;* an *afferent* nerve communicates the impressions made upon the peripheral nervous ramifications to the centres, while an *efferent* nerve conducts the impulses of the nervous centres to the periphery.)

The *Cranial Nerves* though 12 in number on either side, were arranged by Willis (*Cerebri Anatome; cui accessit Nervorum Descriptio et Usus*, 1664), whose system is still generally adopted, into nine pairs, which, taken from before backward in the order in which they are transmitted through the foramina at the base of the skull, stand as follows: 1st, Olfactory; 2d, Optic; 3d, Motores Oculorum; 4th, Pathetic; 5th, Trifacial; 6th, Abducentes; 7th, Portio Dura or Facial, Portio Mollis or Auditory; 8th, Glossopharyngeal, Par Vagum or Pneumogastric, Spinal Accessory; 9th, Hypoglossal.

They may be subdivided into three groups, according to their functions—viz., *Nerves of Special Sense*—the Olfactory (see NOSE), Optic (see EYE), and Auditory (q.v.); *Nerves of Motion*, or *Efferent Nerves*—the Motores Oculorum, Pathetic, Abducentes, Facial, and Hypoglossal; and *Compound Nerves*—the Trifacial, Glossopharyngeal, Pneumogastric, and Spinal Accessory.

The reason why no nerve of Taste is included in the above arrangement among the nerves of special sense will be subsequently seen; and we proceed briefly to notice the functions of the motor cranial nerves.

The 3d, 4th, and 6th pairs—the *Motores Oculorum*, *Pathetic* and *Abducentes*—together make up the apparatus by which the muscles of the orbit (the four Recti, the superior and inferior Oblique, and the Levator Palpebræ) are called into motion: see EYE.

The *Facial Nerve*, or the *Portio Dura* of the 7th pair, is divisible into three stages. The first stage is the intercranial, from its origin to its exit from the cranial cavity, in association with the *Portio Mollis*, or *Auditory Nerve* (q. v.), at the internal auditory meatus. The second stage is contained in the *Aqueduct of Fallopius*, a bony canal lying in the petrous portion of the temporal bone. In this stage it anastomoses with other nerves, and thus *sensory* fibres are introduced into it from the 5th pair and other sources, which make irritation of some of its branches to cause pain. The third stage commences with the emergence of the nerve through the stylo-mastoid foramen. The nerve now lies in the parotid gland (not shown in the figure), and after giving off the *posterior auricular*, and a few smaller branches, finally divides into the *temporal*, *facial*, and *cervical* branches (see 3, 5, and 9 in fig. 2). This diverging distribution of the nervous branches over the face forms the *pes anserinus* of the older anatomists, from the supposed resemblance to the expanded foot of a goose. Careful dissection of this nerve shows that the great majority of its fibres are distributed to muscles; and indeed, if we except the muscles of mastica-

tion, which receive their motor power from the 3d division of the 5th pair, this may be regarded as the general motor nerve of the face. 'The muscles which are supplied by the facial nerve are chiefly those on which the

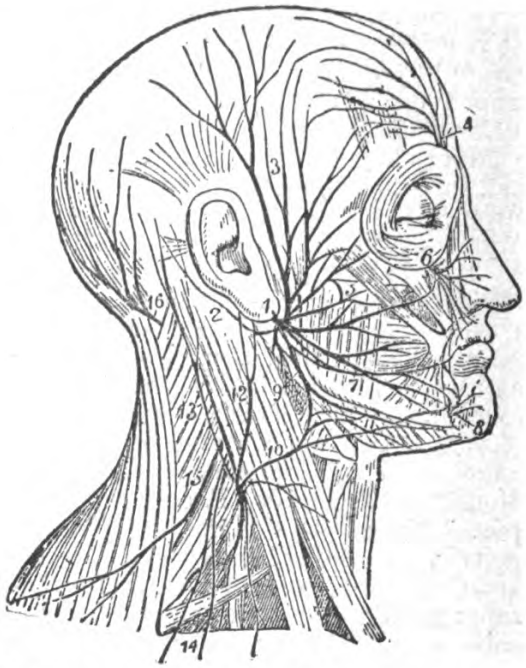


Fig. 2.-Distribution of the Facial Nerve and of the Branches of the Cervical Plexus:

1, the facial nerve at its emergence from the stylo-mastoid foramen: 3, temporal branches communicating with (4) the frontal branches of the fifth or trifacial nerve; 5, infra-orbital branches communicating with (6) the infra-orbital branches of the fifth nerve: 7, maxillary branches communicating with (8) the mental branch of the fifth nerve; 9, cervico-facial branches; 15, the spinal accessory nerve giving off a branch to the trapezius muscle.

aspect of the countenance and the balance of the features depend. The power of closing the eyelids depends on this nerve, as it alone supplies the orbicularis palpebrarum; likewise the power of frowning, from its influence upon the corrugator supercilii. Anatomy indicates that this nerve is the motor nerve of the superficial muscles of the face and ear, and of the deep-seated muscles within the ear. This conclusion is abundantly confirmed by comparative anatomy. For wherever the superficial muscles of the face are well developed, and the play of the features is active, this nerve is large. In monkeys it is especially so. That extremely mobile instrument, the elephant's trunk, is provided with a large branch of the facial as its motor nerve. In birds, on the other hand, it is very small.'—Todd and Bowman, *Physiological Anatomy and Physiology of Man*, II. 107.

Before Sir Charles Bell began his experiments on the functions of the nerves, it was believed that the facial

was the nerve of sensibility of the face, and it was on several occasions divided with the view of relieving tic-douloureux, of which it was supposed to be the seat. But the operation, of course, yielded no relief, and always inflicted a permanent injury, since it was succeeded by paralysis of the facial muscles, with total loss of control over the features and over the closing of the eye, on the side on which the operation was performed. For the treatment of facial palsy—often, especially if it arises from cold, a very temporary affection, though usually a very alarming one to the patient and his friends—see PARALYSIS.

The *Hypoglossal Nerve* [from Greek word *hypo*, under; *glotta*, the tongue] escapes from the cavity of the skull by the anterior condyloid foramen, and passes outward and forward around the pharynx to the interior surface of the

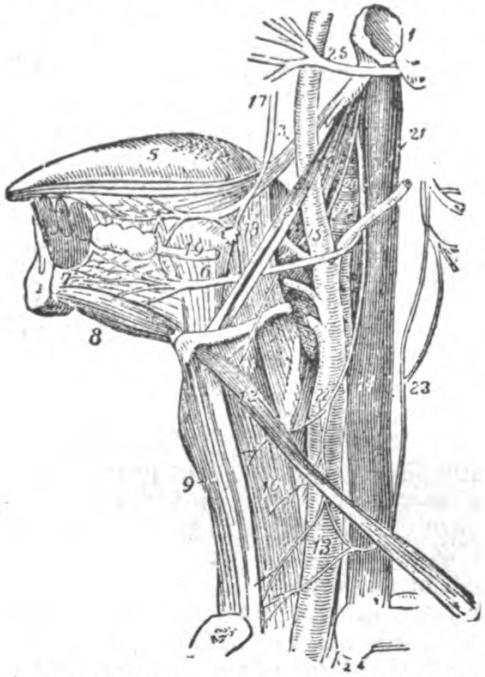


Fig. 3.—This figure illustrates the Anatomy of the Side of the Neck, and shows, *inter alia*, the Nerves going to the Tongue:

1, portion of temporal bone, showing the external auditory meatus and mastoid and styloid processes; 5, the tongue, 13, the common carotid artery; 14, the internal jugular vein; 15 and 16, the external and internal carotids; 17, the gustatory branch of the fifth nerve; 20, the glossopharyngeal nerve; 21, the hypoglossal nerve; 22, the descendens noni; 24, the pneumogastric nerve, lying between the carotid artery and the jugular vein; 25, the facial nerve.

tongue, where it breaks up into its terminal branches, which supply the muscular structure of that organ with motor power. This nerve communicates with the pneumogastric nerve, with the sympathetic (by branches derived from the superior cervical ganglion), and with the cervical plexus, soon after its emergence from the cranium; and subsequently, as it curves round the occipital artery

(see fig. 3), it gives off the long anastomosing branch known as the *Descendens noni.*

Experiments on living animals, comparative anatomy, and pathological investigations, alike indicate that this is the motor nerve of the tongue. In cases of paralysis of this nerve, the power of articulation is much injured or totally destroyed; and this is often one of the first symptoms which lead the physician to apprehend serious cerebral lesion.

Concerning the *Compound Nerves*, it is to be noted that the *Trifacial* or *Fifth Nerve*, as was pointed out first by Sir Charles Bell, presents a remarkable resemblance to the spinal nerves in its mode of origin; for it arises by two roots, one large and the other small, and on its larger root, as on the posterior and larger root of the spinal nerves, is a distinct ganglion; the two roots being quite distinct until after the formation of the ganglion, when the lesser one coalesces with the lowest branch, which emerges from the ganglion to form the inferior maxillary nerve. This ganglion, known as the Gasserian Ganglion, and formed on the larger root of the nerve, lies upon the upper surface of the petrous portion of the temporal bone, and is of somewhat triangular form, with its base directed forward and outward. From this base proceed three nerves—the ophthalmic, on the inside; the superior maxillary, in the middle; and the inferior maxillary externally. The first two of these nerves consist exclusively of fibres from the ganglionic root, while the third—the inferior maxillary—is composed of fibres from both roots, and is therefore a compound nerve. From the mode of distribution, as well as from the mode of origin, it is inferred that the ophthalmic and superior maxillary are purely sensory, while the inferior maxillary is a motor and sensory nerve. (Of this complicated nerve, the frontal branch of the ophthalmic division is shown in fig. 2, No. 4; while the infra-orbital branches of the superior maxillary division, and the mental branches of the inferior maxillary divisions, are shown in Nos. 6 and 8; while the gustatory or lingual branch of the last-named division is shown in fig. 3, No. 17; the nasal branches are shown in one of the diagrams illustrating NOSE.) Experiments on living animals confirm the inferences drawn on anatomical grounds. Division of the ophthalmic or of the superior maxillary nerve, induces loss of sensibility without any serious impairment of muscular power; but when the inferior maxillary nerve, on either side, is divided, the power of mastication is destroyed on that side, and the sensibility of the tongue and of the lower part of the face on that side is lost.

The lingual or gustatory branch of the inferior maxillary is distributed to the mucous membrane and papillæ at the fore part and sides of the tongue, where it acts as a nerve both of common sensibility and of taste. (For the consideration of the respective parts which this

nerve and the glossopharyngeal play in the sense of taste, see TONGUE: SENSE OF TASTE.)

The trifacial nerve is the seat of the affection known as tic-doutoureux (see NEURALGIA). It is in the dental branches of this nerve that toothache is situated; and in the process of teething in young children, the irritation of these branches, consequent on the pressure of the teeth, often gives rise to convulsions, by being conveyed to the medulla oblongata, and exciting motor nerves by reflex action.

The *Glossopharyngeal Nerve* is principally an afferent or sensory nerve, but has a small motor root. It escapes from the cranium in association with the pneumogastric and spinal accessory nerves, through the same foramen as that through which the jugular vein emerges. It then descends by the side of the pharynx, and after anastomosing with the facial and pneumogastric nerves, and giving off a branch to the tympanum of the ear, terminates in branches to the mucous membrane of the base of the tongue, of the palate, tonsils, and pharynx, and in twigs to the digastric and stylopharyngeal muscles; so that its distribution is almost entirely to sentient surfaces (see fig. 3, No. 20). From a careful examination of the investigations of Dr. John Reid and others regarding the functions of this nerve, Todd and Bowman arrive at the following conclusions: 1. 'It is the sensitive nerve of the mucous membrane of the fauces and of the root of the tongue, and in the latter situation it ministers to taste and touch, as well to common sensibility; and being the sensitive nerve of the fauces, it is probably concerned in the feeling of nausea, which may be so readily excited by stimulating the mucous membrane of this region.' 2. 'Such are its peripheral organization and central connections, that stimulation of any part of the mucous membrane in which it ramifies, excites instantly to contraction all the facial muscles supplied by the pneumogastric and the facial nerves; and the permanent irritation of its peripheral ramifications, as in the case of sore throat, will affect other muscles supplied by the facial nerve likewise. It is therefore an excitor of the movements necessary to pharyngeal deglutition.'—*Op. cit.* II. 119.

The *Pneumogastric Nerve*, or *Par Vagum*, is distributed to many important organs (the larynx, heart, lungs, stomach, etc.), and is of great physiological importance: see PNEUMOGASTRIC NERVE.

The *Spinal Accessory Nerve* is more remarkable for its peculiar course than in any other respect. It rises from the spinal cord at the level of the fifth or sixth cervical nerve, passes upward between the anterior and posterior roots of the cervical nerves into the skull, and emerges from the cranial cavity with the two preceding nerves. It is distributed chiefly to the trapezius muscle. See Fig. 2, No. 15.

For the points of origin of the cranial nerves, see BRAIN.

The mode in which the extremities receive their nerves is as follows. These nerves are derived from the spinal nerves, through the intervention of what is termed in anatomy a *plexus*. Four or five nerves proceed from the spinal cord for a certain distance, without any communication with each other. They then divide, and from the conjunction of the adjacent branches new nerves result, which again subdivide and interchange fibres. From the net-work or plexus thus formed nerves emerge, each of which is composed of fibres derived from several of the original branches. The most important of these plexuses are found in the regions of the neck, the axilla, the loins, and the sacrum, and are known as the cervical, brachial, lumbar, and sacral plexuses.

The *Brachial Plexus* is formed by communication

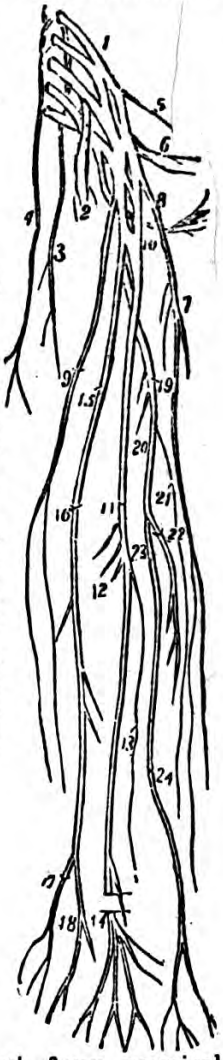


Fig. 4.—A diagram showing the Brachial Plexus of Nerves of the left side, with its branches. Front view.

1, the brachial plexus; 2 and 3, the anterior and posterior thoracic nerves; 4, the phrenic nerves going to the diaphragm; 7 and 9, the external and internal cutaneous nerves; 10, the origin of the median nerve (which receives its name from taking a course along the middle of the forearm to the palm of the hand); 12 and 13, branches of this nerve; 14, the point at which it passes under the annular ligament, and divides into its terminal branches, which are distributed to the thumb and to all the fingers except the little finger and the outside of the ring-finger, which are supplied by (15) the ulnar nerve, whose terminal branches are shown at 18; 19, the musculo-spiral nerve (the largest of the plexus); 23, 24, the radial nerve, one of the branches of the musculo-spiral.

between the anterior roots of the last four cervical nerves and the first dorsal nerve. These nerves are nearly equal in size, and their mode of distribution is explained by the diagram. The branches emerging from

this plexus supply the shoulder and the arm: and the names of the most important of these branches are given in the description attached to the figure.

The *Lumbar* and *Sacral Plexuses*, with the nerves of the lower extremity, are shown in fig. 5: the description

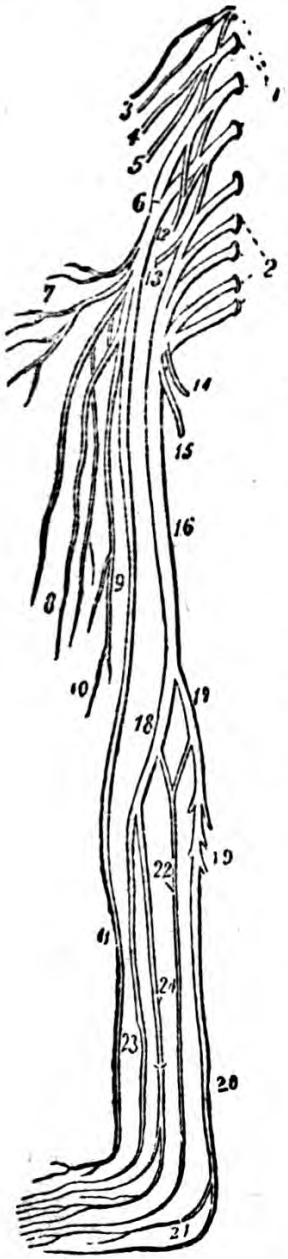


Fig. 5.-A diagram showing the Lumbar and Sacral Plexuses, with the Nerves of the lower extremity.

1, the first four lumbar nerves which, with the branch from the last dorsal, form the lumbar plexus; 2, the four upper sacral nerves, which, with the last lumbar, form the sacral plexus; 6, the anterior crural or femoral nerve; 7, 8, 9, 10, its branches; 11, its terminal branch, the long or internal saphenous; 13, the gluteal nerve; 15, the lesser ischiatic nerve; 16, the greater ischiatic or sciatic nerve (the largest nerve in the body), dividing at about the lower third of the thigh, into 17, the popliteal nerve, and 18, the peroneal nerve; 19, muscular branches of the popliteal, given off in the posterior region of the knee; 20, the posterior tibial nerve, dividing, at 21, into the internal and external plantar nerves, which are distributed to the sides of the toes, in precisely the same manner as the median and ulnar nerves are distributed to the fingers; 22, the external saphenous nerve; 23 and 24, the two terminal branches of the peroneal nerve—viz. the anterior tibial and the musculo-cutaneous nerves.

attached to the diagram explains the mode of formation and the distribution of the branches of these plexuses.

The general arrangement of the *sympathetic system*, or, as it is sometimes termed, the *sympathetic nerve*, has been noticed at the beginning of this article. Its cephalic portion consist of four ganglia on either side—viz., (1)

the Ophthalmic, or Lenticular Ganglion; (2) the Spheno-palatine, or Meckel's Ganglion; (3) the Otic, or Arnold's Ganglion; (4) the Submaxillary Ganglion. They all are closely connected with the branches of the trifacial nerve. The cervical portion contains three ganglia, the dorsal twelve, the lumbar four, the sacral five, and the coccygeal one, which, instead of lying on the side of the vertebral column, is placed in front of the coccyx, and forms a point of convergence for the two ganglionated cords which run from the cervical to the sacral region parallel to one another. Each ganglion may be regarded as a distinct nervous centre, from which branches pass off in various directions. In addition to the cords of communication between the ganglia, certain sets of nerves may be usually traced—viz., (1) *visceral* nerves, which generally accompany branches of arteries to the viscera (the lungs, heart, kidneys, liver, spleen, and intestine, etc.); (2) *arterial* branches, distributed to arteries in the vicinity of the ganglia; and (3) branches of *communication* with the cerebral and spinal nerves, an example of which is shown in fig. 1.

The distribution of the sympathetic nerve on the right side is shown in fig. 6. The only nerve that our limited space will permit us to notice is the *great splanchnic*. This nerve arises by separate roots from the 5th, 6th, 7th, 8th, and 9th thoracic ganglia. These roots (see the figure) unite to form a large round cord, which passes obliquely downward and forward, and after entering the abdomen by piercing the diaphragm, ends in a large and complex ganglion, the *semilunar ganglion*, which lies upon the side and front of the aorta, at the origin of the celiac axis. The semilunar ganglia, with the nerves entering and emerging from them, combine to form the *solar plexus*, which, from the mass of nervous matter which it contains, has been termed the *abdominal brain*. It is because of the existence of this great nervous centre, that a blow in the region in which it lies always inflicts a severe nervous shock, and frequently causes death.

Experiments and clinical observations lead to the conclusion, that the sympathetic system supplies motor power to many of the internal viscera, especially the heart and the intestinal canal; that it also contains sensitive fibres, as is shown by the sufferings of patients during the passage of a gall-stone or a renal calculus through a duct, whose sole nervous energy is derived from this system; that it presides over the process of secretion in the most important glands; and that it operates on the blood-vessels in causing them to contract while the cerebro-spinal nerves produce the opposite effect.

Examining different parts of the nervous system under the microscope, we find that the nervous matter is distributed in two forms, the *vesicular* and the *fibrous*. The vesicular matter is gray in color, and granular in texture, contains nucleated nerve-cells, and is largely supplied with blood; it is immediately associated with mental

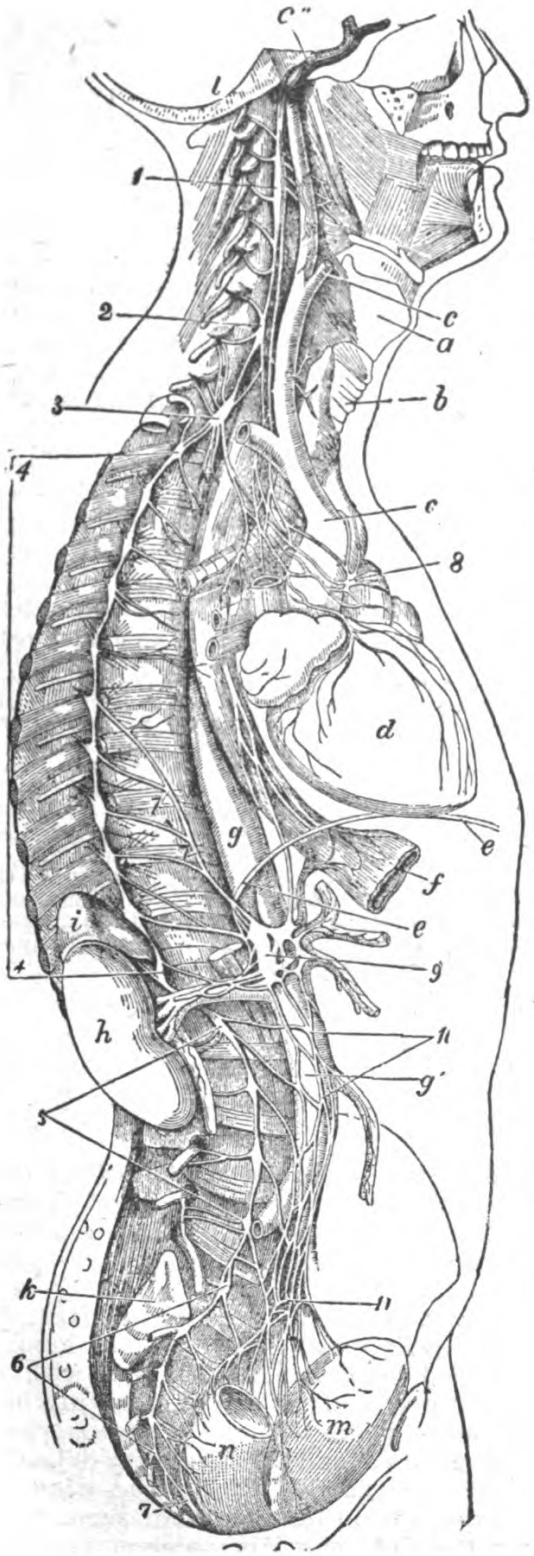


Fig. 6.--The Sympathetic Nerve; the right lateral walls of the chest and abdomen, and the stomach, intestines, liver, spleen, and pancreas being removed to bring it in view:

1, 2, 3, the superior, middle, and inferior cervical ganglia: **4,** the two lines from this figure include the twelve dorsal ganglia; **5,** include the four lumbar ganglia; **6,** include the five sacral ganglia: **7,** the ganglion impar; **8,** cardiac plexus; **9,** solar plexus; **10,** aortic plexus: **11,** hypogastric plexus; *a*, the larynx; *b*, the trachea; *c*, arch of the aorta; *c'*, external carotid; *c''*, internal carotid; *d*, the heart; *e,e*, the diaphragm; *f*, the cardiac end of the esophagus; *g*, thoracic, and *g'*, abdominal aorta; *h*, the kidney; *i*, the supra-renal capsule; *k*, the sacrum; *l*, the section of base of the skull; *m*, the bladder; *n*, the lower portion of the rectum.

actions, and is the seat in which the force manifested in nervous action is first developed. The fibrous matter is, in most parts, white and composed of tubular fibres, though in some parts it is gray and consists of solid fibres; it is less vascular than the former, and is simply the conductor of impressions made upon it. When these two kinds of matter are united together into a mass they form a *nervous centre*, such as the brain or spinal cord, while the *nerves* passing to and from them are composed of threads of fibrous matter. The nervous matter of both kinds is a soft, unctuous substance, with very slight tenacity; the softness being in a great measure due to the large quantity of water which it contains.

The *fibrous* form is the most extensively diffused throughout the body. It forms a large portion of the

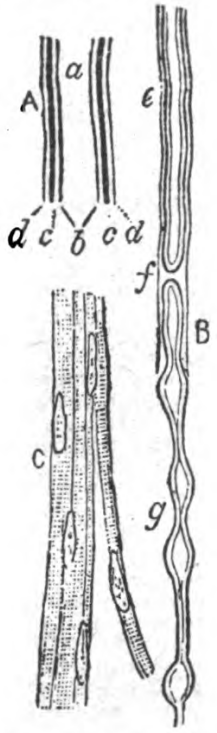


Fig. 7.

A, diagram of tubular fibre of a spinal nerve; *a*, axis cylinder; *b*, inner border of white substance; *c*, *c*, its outer border; *d*, *d*, tubular membrane; B, tubular fibres; *e*, in a natural state, showing the parts as in A; *f*, the white substance and axis cylinder interrupted by pressure, while the tubular membrane remains; *g*, the same, with varicosities which are especially apt to be exhibited in the nerves of the special senses, and of young animals generally; C, gelatinous fibres from the solar plexus, treated with acetic acid to exhibit their cell-nuclei; B and C magnified 320 diameters; A on a considerably larger scale.--From Todd and Bowman.

nervous centres, and is the main constituent of all the nerves. It occurs in two varieties—viz., as the *tubular fibre* or the *nerve tube*, and the *gelatinous fibre*, the latter being comparatively rare, and found chiefly in the sympathetic system.

When a *tubular fibre* is viewed by reflected light, it presents a beautiful pearly lustre, and appears homogeneous. But, if viewed by transmitted light, with a sufficient magnifying power, indications of structure become visible. Externally, there is the *tubular membrane* (A *d*, *d*, fig. 7), a homogeneous and probably very delicate elastic tissue, according to Todd. Within the edge of the tubular membrane, on either side are seen two thicker and darker lines (A, *c*, *c*, *b*), which appear to mark the outer and inner limits of the structure known

as the *white substance of Schwann*, which forms a tube within the tubular membrane; and within the white substance of Schwann is a transparent material occupying the axis of the nerve tube, and commonly known as the *axis cylinder* (A *a*). By the application of reagents, it is seen that the chemical composition of the white substance is different from that of the axis cylinder; hence the functions of these two parts are doubtless different; the latter is in general soft and pulpy. The nerve-tubes are cylindrical in form, and lie parallel to one another, without any inosculation, if we except their frequent terminations in loops. Their average diameter is about $\frac{1}{3000}$ of an inch.

The *gelatinous fibres* are flattened, soft, and homogeneous in appearance, and contain numerous round or oval nuclei (see fig. 7, C). Their diameter is about $\frac{1}{5000}$ of an inch. In appearance they much resemble the fibres of unstriped muscle.

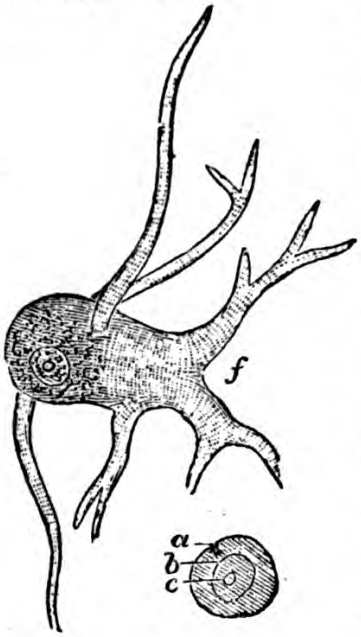


Fig. 8.

a, a globular nerve-vesicle from the Gasserian ganglion of the human subject; *b*, its nucleus; *c*, its nucleolus, magnified 300 diameters; *f*, caudate vesicle from the gray matter of the spinal cord, magnified 200 diameters. — From Todd and Bowman.

The *vesicular* form of nervous matter is of dark reddish-gray color, is found only in the nervous centres, is always well supplied with capillaries, and consists essentially of nucleated cells or vesicles, which are most commonly globular or ovoidal, but often present one or more tail-like processes, when they are termed *caudate* (see fig. 8). These caudate vesicles present great difference in shape and size. The processes are very delicate, and readily break off close to the vesicle. They probably either serve to connect distant vesicles, or else become continuous with the axis cylinders of the tubular fibres.

We may now consider the way in which the nerves and nervous centres are made up of these anatomical elements.

A *nerve* is composed of a bundle of tubular fibres surrounded and connected by areolar tissue, which forms a sheath known as the *neurilemma*, whose office is to protect the delicate tubes, and to support the capillaries from which they derive their nourishment.

The *nervous centres* exhibit a union of the vesicular and fibrous textures, which may be variously arranged.

In the Brain (q.v.) the vesicular matter lies externally, forming the gray or cineritious substance; in the spinal cord, on the other hand, the vesicular or gray matter lies in the central portion, and the fibrous or white matter is external to it; while in the ganglia the two structures are more or less uniformly associated (see fig. 9).

It is obvious that it is through the instrumentality of the nervous system that the mind influences the bodily organs, as when volition or emotion excites them to action; and that conversely, impressions made on the organs of the body affect the mind, and excite mental perceptions through the same channel: see observations in an earlier part of this article on the functions of individual nerves. 'In this way,' to quote the words of Dr. Todd, 'the nervous system becomes the main agent of what has been called the life of relation; for without some channel for the transmission of the mandates of the will to the organs of motion, or some provision for the reception of those impressions which external objects are capable of exciting, the mind, thus completely isolated, could hold no communion with the external world.' The nature of the connection between the mind and nervous matter is, and must ever be, the deepest mystery in physiology, and one into which the human intellect can scarcely hope to penetrate. There are, however, many actions of the body in the production of which the mind has no share. Of this kind are the nervous actions associated with the functions of organic life, such as digestion, respiration, and circulation. There is another class of actions for which two nerves (an afferent, or excitor, and a motor) and a nervous centre are necessary. These are the actions known as *reflex* or *excito-motory*, for the full investigation of which physiology is especially indebted to the labors of Dr. Marshall Hall. Thus the movement of the esophagus, in propelling the food onward to the stomach, is caused by the stimulus of the food acting on the excitor or afferent nerves, which, through the spinal cord, excite the motor or efferent nerves, and thus give rise to the necessary muscular action. When the edge of the eyelid is touched, the excitor nerve (a branch of the ophthalmic division of the fifth or trifacial nerve) conveys the impression of the stimulus to the nervous centre, and the eye is at once closed by the motor influence, which is transmitted by a

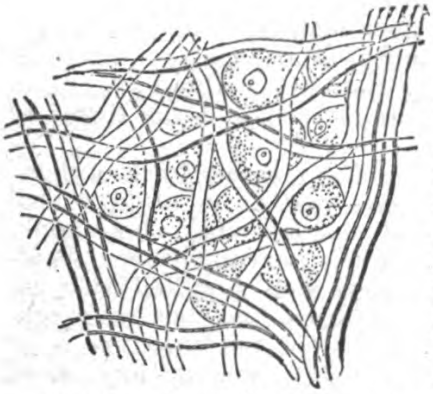


Fig. 9.—A small piece of the Otic ganglion of the sheep, slightly compressed, showing the interlacement of the nervous fibres and vesicular matter.

branch of the facial nerve to the orbicular muscle. In such cases as these—and they form a very numerous class—the mind takes no part. In some of them it is conscious of the application of the stimulus, as well as of the muscular act which follows; but even in these cases no effort of the will could modify or interrupt the sequence of the phenomena.

It has been already shown that the stimuli, by which the action of nerves is commonly excited, are of two kinds, mental and physical, and the change which these stimuli produce in a nerve develops the power known to physiologists as the *vis nervosa*, or nervous force. 'The nervous force,' says Dr. Sharpey, in his *Address on Physiology*, 1862, 'has long been likened to electricity, but rather through a vague perception of analogy than from any rigorous comparison. It is true that electric force is developed in the nerves, and even exhibits modifications connected with different conditions of nervous action. Still, it must be borne in mind that the evolution of electricity is a common accompaniment of various processes involving chemical change, whether within the living body or in external nature; and the tendency of recent speculation is not toward the identification of the nerve force with electricity, but rather to suggest that the two stand related in the same way as electricity and other physical forces are related to each other—that is, as manifestations of a common force or energy, of which they, severally, are the special modifications.' The velocity with which impressions are transmitted by the nerves has been recently made the subject of investigation, but it is doubtful how far the observations are to be depended on, in consequence of the various sources of fallacy which pertain to such experiments. According to Hirsch, the velocity is 34 mètres, or about 112 ft. per second, in man; while Helmholtz fixes it at 190 ft. per second in the frog.

The foregoing description of the nervous system is applicable, with slight modifications, to all the Vertebrates; the main differences being in the degree of the development of the brain (see BRAIN). For a notice of the plan of the nervous system in the Invertebrate animals, see ARTICULATA: MOLLUSCA: RADIATA. It is only in the lowest subdivision of the Animal Kingdom, the PROTOZOA, that no traces of a nervous system can be detected.

See, further, Dr. Carpenter's works on *Human* and *Comparative Physiology;* Dr. Todd's article on 'The Nervous System,' in *The Cyclopædia of Anatomy and Physiology;* and the physiological works of Todd and Bowman, Dalton, Draper, Marshall, Flower, Foster, and other authorities on this and cognate subjects.

NERVY, a. *nêr′vĭ* [L. *nervus*, a nerve (see NERVE)]: in *OE.*, strong; vigorous.

NESCIENCE, *nĕsh'i-ĕns* [L. *nesciens*, unknowing, ignorant—from *ne*, not; *sciens*, knowing]: want of knowledge; ignorance.

NESH, a. *nĕsh* [AS. *hnæsc*, soft: Goth. *hnaskwus*, soft, tender: Scot. *nash*, tender, delicate]: in *old* and *prov. Eng.*, soft; tender.

NESS, LOCH, *lŏch nĕss:* long narrow lake in Inverness-shire, Scotland, extending n.e. and s.w.; 23 m. in length, 1¼ m. in average breadth. Its n.e. extremity reaches a point 6 m. s.w. of the town of Inverness. It receives the Morriston, the Oich, the Foyers, and other streams, and its surplus waters are carried off to the Moray Firth by the river Ness. It lies in the valley of Glenmore, and is inclosed by mountains averaging 1,000 ft. in height; but the scenery on its banks is not strikingly picturesque. In many places it is about 130 fathoms in depth, and ice never forms to any considerable extent.

NESS, *nĕs*, or NAZE, *nāz* [identical with Eng. *nose;* AS. *næse*, a cape—comp. Ger. *nase;* Icel. *nes;* L. *nasus;* Fr. *nez*, a cape, headland (see NAZE)]: Geographical termination, signifying promontory. Names in *-ness* abound among the Orkney and Shetland Islands, and on the coast of Caithness; and they occur, though less frequently, along the e. coast of Great Britain, as far as Dungeness in Kent. As the corresponding Scandinavian termination *-naes* prevails in the names of promontories in Norway, Sweden, and Denmark (e. g., Lindesnaes, in s. Norway), the existence of names in -ness in Britain is held as evidence of Scandinavian and Danish colonization. Grisnez, on the n. coast of France, points to the same source.

NESSELRODE, *nĕs'sil-rō-dĕh*, KARL ROBERT, Count: eminent diplomatist, long foreign minister of Russia: 1780, Dec. 14—1862, Mar. 23; b. Lisbon, where his father, descendant of an ancient noble family on the lower Rhine, was then Russian ambassador. He early entered on a diplomatic career, gained in a high degree the esteem and confidence of Emperor Alexander, and was one of the representatives of Russia in the important negotiations, 1813, between the powers that combined against France. In 1814 he accompanied the Russian emperor to France. and signed the treaty of the Quadruple Alliance at Chaumont, Mar. 1. He was also one of those who concluded the treaty with Marshal Marmont for the surrender of Paris. He continued to take a principal part in all the negotiations which ended in the Peace of Paris; and was one of the most prominent of the plenipotentiaries in the Congress of Vienna. He was one of the most active diplomatists of the Holy Alliance, and accompanied Emperor Alexander to the congresses of Aix-la-Chapelle, Troppau, Laibach, and Verona. Emperor Nicholas reposed in him the same confidence, and under his reign he conducted the Russian policy in the affairs of Greece and Turkey. Amid the European convulsions of 1848 and

9, Russia, under his guidance, refrained from interference, till opportunity occurred of dealing a deadly blow to the revolutionary cause in Hungary, and, at the same time, of bringing Austria very much under Russian influence. Being one of the chiefs of the German or moderate party in Russia, N. is supposed to have exerted himself strenuously to preserve peace with the Western Powers; and after the war had broken out in 1854, and the ill success of Russia was manifest, he undoubtedly strove for the re-establishment of peace, and for the assembling of a congress to settle all disputes. After the accession of Alexander II., he retired from the direction of foreign affairs, and was succeeded in that department by Prince Alexander Gortschakoff, but retained the dignity of chancellor of the empire, and a seat in the ministerial council. He died at St. Petersburg.

NESSLER'S TEST, n. *nĕs'lĕrz tĕst* [named from the inventor]: in *chem.*, a very delicate test for ammonia, consisting of iodide of mercury dissolved in iodide of potassium, and made alkaline with solution of soda. It gives a brown precipitate or color according to the quantity of ammonia present, and is capable of detecting one part of that substance in ten million parts of water.

NESSUS, *nĕs'sŭs:* one of the fabled Centaurs of Greek mythology, son of Ixion and Nephele, or the sun and the cloud. The name belonged to a river of Thessaly, and the fabled creature figured the vapor of the stream, with its relation to sun and cloud. In the mythical story, Nessus, pretending to assist Hercules (who is again the sun-god) to get possession of Dejanira, plays a trick on him and gets his death from one of the poisoned arrows of the god-hero. In dying, N. plans revenge by sending to Dejanira his tunic, deeply blood-poisoned, as a gift to excite love. She gives it to Hercules, who puts it on and is killed by the poison which came from his own arrows.

NEST, n. *nĕst* [Ger. *nest;* Sw. *näste*, a nest: Pol. *gniazdo*, a nest, a breed: Bret. *neiz;* Gael. *nead;* L. *nidus:* allied to Ger. *nähen*, S. *nestan*, L. *nectere*, to sew, bind, tie]: bed or dwelling prepared by a bird for incubation, and for its young till able to fly; any place where insects or small animals are produced (see NESTS): a warm, close place of abode; a number of persons dwelling together, in an ill sense, as a *nest of thieves;* a number of boxes or baskets placed one within the other; a set of small drawers; in *OE.*, a place of residence; abode: V. to build and occupy a nest. NEST'ING, imp. NEST'ED, pp. NEST-EGG, an egg left in a nest to prevent the hen forsaking it; money laid up as a beginning or nucleus.

NEST-BUILDING APES: various kinds of monkeys, including the higher anthropoid apes, which build sleeping-places for their females and young. Koppenfels asserts that the gorilla breaks and twists the branches of a tree 30 ft. from the ground, and piles on twigs and a layer of leaf-moss. The male animal crouches all night at the

foot of the tree with his back against it, and thus protects his household against leopards. So the chimpanzee makes a nest for his family on a forked branch, and spends the night sitting on guard immediately beneath it. The orang unquestionably makes a nest of boughs and leaves laid crosswise, lined with fronds or leaves of orchids; these nests are 10 to 15 ft. high. Gibbons seem not to build nests at all. The best authorities think that the pent-house which Du Chaillu said was built by the Nschiego Mbouve (which Hartmann unhesitatingly identifies with the chimpanzee) was suggested solely by a sight of the male animal sitting beneath its family nest as guardian. The cut is alleged to have been

Nest-building Ape (*Troglodytes calvus*).

much embellished by imagination. Some assert (though Wallace doubts it) that the orang makes a fresh lair every night; others, that this is done when the one in use no longer keeps out the rain, perhaps once in 10 or 15 days. Du Chaillu's nest-building ape (Nschiego Mbouve) is nearly four ft. in length. Du Chaillu supposes this ape to rest all night on a projecting branch, under its nest or umbrella, with an arm round the stem of the tree for security. The nests are generally 15 or 20 ft. from the ground. These apes inhabit the most lonely parts of the forests. The nests are never congregated together, so that this ape does not seem to be gregarious. It feeds on fruits.—Du Chaillu discovered a second species of nest-building ape, on his second visit to the Ogobai, very similar to the *Troglodytes calvus*, but which constructs its nest in different fashion. It is called Nschiego Nkengo by the natives. It makes its nest or shelter 20 or 30 ft. from the ground, by bending over and intertwining a number of the weaker boughs, the foliage of which forms its protection from rain.

NESTLE, v. *nĕs'l* [AS. *nestlian*, to nestle—from ***nest***, a nest, which see]: to cherish and fondle closely, as a bird its young; to lie close and snug. NESTLING, imp. *nĕs'ling:* ADJ. recently hatched: N. a young bird from the nest or in it. NESTLED, pp. *nĕs'ld.*

NESTOR, *nĕs'tor:* according to ancient Grecian legend, son of Neleus and Chloris, born in the Messenian Pylos. He escaped destruction when Hercules slew all his brothers, being then a dweller among the Geronians, with whom he was brought up. He married Eurydice, by whom he became the father of a numerous family. In his youth he was distinguished for valor in wars with the Arcadians, Eleians, and the Centaurs, and in his advanced age for wisdom. Although he was an old man when the expedition against Troy was undertaken, he joined it with his Pylians in 60 ships. Homer makes him the great counselor of the Grecian chiefs, and extols his eloquence as superior even to that of Ulysses. His authority was considered equal even to that of the immortal gods. N. returned in safety to his own dominions after the fall of Troy, with Menelaus and Diomedes, and long ruled over the people of Pylos.

NESTORIAN, n. *nĕs-tō'rĭ-ăn:* one of an anc. sect founded by *Nestorius* of Constantinople in the 5th century, who taught that the divine and human natures of Christ did not unite and form one person—that Mary was not the *mother of God*, but of Christ: ADJ. of or relating to the Nestorians. NESTORIANISM, n. distinctive doctrine of the Nestorians (see NESTORIUS: also, for their history to the time of its condemnation). In later ages, even after the Council of Ephesus, Nestorianism prevailed in Assyria and Persia, chiefly through the influence of the well-known school of Edessa. Although vigorously repressed in the Roman empire, it was protected, and probably the more on that account, by the Persians, and ultimately was established by King Pherozes as the national church, with a patriarch resident at Seleucia; its fundamental doctrine, as laid down in the synod of Seleucia 496, being the existence of two distinct persons as Christ, united solely by a unity of will and affection. Under the rule of the caliphs, the Nestorians had considerable protection, and throughout the countries of the East their community extended itself. For their condition in central Asia during the mediæval period, see JOHN PRESTER. In the middle of the 12th c., their church reckoned no fewer than 90 bishops under regular metropolitans, together with 56 others, whose special dependencies are unknown; but in the destructive career of Tamerlane, they shared the common fate of all the representatives of the eastern civilization. In the 16th c., a great schism took place in this body, of which a portion renounced their distinctive doctrine, and placed themselves under the jurisdiction of the Roman pontiff, to whom, under the title of Chaldean Christians, they have

since remained faithful. The others still maintain their old creed and their ancient organization. Their chief seat is in the mountain-ranges of Kurdistan. They are at present a poor and illiterate race, numbering about 140,000, and subject to a patriarch residing at Diz (who is always chosen from the same family, and takes invariably the name of Schamun, or Simon) and 18 bishops. All these prelates are bound to observe celibacy, but marriage is permitted to the priests and inferior clergy. Their liturgical books recognize seven sacraments, but confession is infrequent, if not altogether disused. Marriage is dissoluble by the sentence of the patriarch; the communion is administered in both kinds, and though the language of the liturgy plainly implies the belief of transubstantiation, yet, according to Layard, that doctrine is not popularly held among them. The fasts are strict and of very long duration, amounting to very nearly one half of the entire year. They pray for the dead, but are said to reject the notion of purgatory, and the only sacred image which they use or reverence is that of the cross. The Nestorians of Kurdistan, like the Christians of the Lebanon, have suffered much from time to time through the fanaticism of the wild tribes among whom they reside. In a massacre 1843, and again 1846, many fell victims; and even still they owe much of their security to the influence exercised in their favor by the foreign representatives at the Turkish and Persian courts.

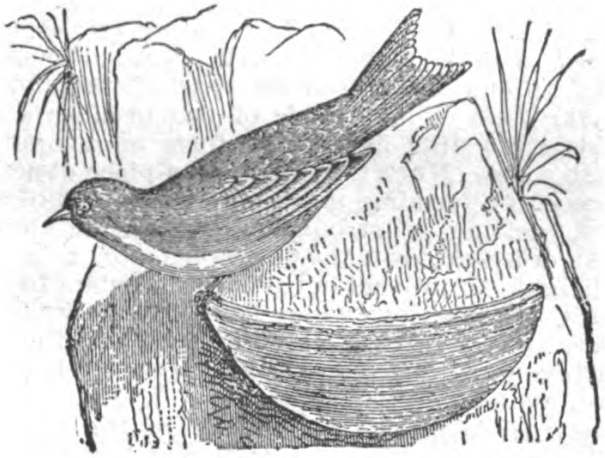
There is another body of Nestorians who have existed in India from the period of the early migrations of the sect, and who are called by the name of Syrian Christians. Their chief seat is in Travancore, where they number about 100,000. Among both bodies of Nestorians, European missionaries, Rom. Cath. and Prot., have of late years endeavored to effect an entrance. The missions of the Amer. Board to the Nestorians in Persia have been interesting and successful. In some cases, priests and even bishops have put themselves under missionary instruction. The missionaries found these relics of an ancient and powerful church in great ignorance and poverty, without any printed Scriptures, and almost without any books. Now, they are supplied with the Bible both in their ancient language and in the vernacular. Of various school-books about 12,000 vols. have been printed, periodicals are circulated, and boarding-school for girls and a high school for boys have been established, at which hundreds have been fitted for usefulness, of which number more than 70 have become preachers of the gospel. The Nestorian converts themselves have become missionaries to the Moslems, Jews, and Malaken's of Russia. See Perkins's *Residence of Eight Years in Persia, among the Nestorian Christians* (Andover 1843); Anderson's *Oriental Churches* (1872); Buchanan's account (1807); Smith and Grant's *Researches;* and Dean Stanley's *History of the Eastern Church.*

NESTORIUS, *nĕs-tō′rĭ-ŭs:* patriarch of Constantinople from 428 to 431; d. some time after 439; b. Germanicia, a city of n. Syria, in the patriarchate of Antioch. He was probably a disciple of the celebrated Theodore of Mopsuestia; and having received priest's orders at Antioch, became so eminent for his fluency, if not eloquence, as a preacher, and for grave demeanor and exemplary life, that, on occasion of a dispute about the election of a patriarch of Constantinople, he was selected by the emperor, 428, to fill the vacant see. Soon after his consecration, a controversy arose as to the divine and human natures of our Lord, in which N. took a leading part. One of the priests, who followed N. to Constantinople, Anastasius, having in a sermon, which was by some ascribed to N. himself, denied that the Virgin Mary could be truly called the 'mother of God,' being only in truth the mother of the man Christ, N. warmly defended Anastasius, espoused this view, and elaborated it into the theory which has since been known by his name, and which equivalently, if not in formal terms, exaggerated the distinction of two natures in our Lord into a distinction of two persons—the human person of Jesus and the Divine Person of the Word. An animated controversy ensued, which extended from Constantinople to the other patriarchates, and drew from Cyril, patriarch of Alexandria, a formal condemnation of the doctrine of N. in 12 anathemas still preserved, and a similar condemnation, accompanied by a threat of deposition and excommunication, from Celestine, bishop of Rome, unless he would withdraw the obnoxious doctrine. N. remaining firm in his opinions, a general council was convened at Ephesus 431, at which Cyril took the most active and prominent part, and in which, notwithstanding the absence of the patriarch John of Antioch and his bishops, N. was condemned and deposed. Considerable opposition was offered to this judgment for a time, but ultimately N. was confined in a monastery near Constantinople, whence, after four years, still persisting in his views, he was banished to the Greater Oasis in upper Egypt, and, after several changes of his place of confinement, died in exile. The account given by Evagrius, that his death was caused by a disease in which his tongue was eaten by worms, rests, according to Evagrius himself, on a single and unnamed authority. The more probable narratives ascribe his death to the effects of a fall.

NESTS: structures which animals prepare for the rearing of their young. They are very different, not only when the creatures which construct them belong to widely separated divisions of the animal kingdom, but often when the animals are of the same class, or even when they are nearly allied; and while some construct very simple nests, and those of others are very curious and elaborately framed, some make no nest at all.—Among MAMMALS, the nest-builders are certain rodents, e.g., moles, mice, dormice, squirrels, etc., also foxes, weasels, rabbits. The structures of some of the species are as artfully contrived and as beautiful as the nests of birds.—It is among BIRDS that nest-making is most general; though there are not a few species which merely scrape a hole in the ground, and many sea-fowls lay their eggs on ledges of naked rock. The situations chosen by birds for their nests are very various, each species affecting some particular kind of situation, as each species also exhibits a uniformity in choice of materials and in form and mode of structure; these particulars, however, being all liable to modification—within certain limits—according to circumstances. Some birds' nests consist of merely a few straws or leaves collected together; some, of such materials as twigs, straws, moss, hair, etc., very nicely interwoven, and often with a lining finer than the framework; some, as those of swallows, are made of clay or other soft material, which hardens as it dries. Birds' nests are generally open at top, but some, as those of swallows, are so placed, under a projection of rock or of a building, as to be covered, and have the opening at the side; while others are vaulted, and have the opening at the side. Some are situated in holes excavated in clayey, loamy, or sandy banks. The nests of troupials, baltimores, weaver-birds, etc., are remarkable for ingenious contrivance; and a very singular nest is that of the tailor-bird, made by sewing together the edges of leaves. (See these titles.) Many birds are as solitary as possible in their nidification; while others, as rooks and herons, congregate in large communities.—No REPTILES are known to construct nests; their utmost approach to it being to take possession of, or to make, a hole for their eggs in sand, or in some other suitable situation.—The nests of FISHES have recently attracted much attention of naturalists. It is supposed that the ancients were acquainted with the nest-building instinct of some fishes; but it was unknown to modern naturalists till 1838, when it was discovered in a species of Stickleback (q.v.): it now gives interest to many a fresh-water aquarium. Not many fishes are yet known as nest-builders. Among them are gobies and the goramy. Many are known not to construct nests. The salmon and others exhibit an approach to the nest-building habit, in making a place for their eggs in the sand or gravel which they choose for a spawning-bed.—Many INSECTS—a small proportion, however, of the whole number, and mostly *Hymenoptera*—construct nests, as bees, wasps, and ants. The nests

of the social bees and wasps are also their ordinary habitations, but the nests of solitary bees are solely for their young. A few insects, not hymenopterous, e.g., some weevils, also may be said to make nests; but among insects provision for the wants of the young is made usually in very different ways. Certain spiders, among which are the water-spider, construct nests.—The instinct of nest-making, connected as it is with the instinctive care for their young which the Creator has made so important a part of the nature of so many animals, is not an index either of that care or of the affection with which, in many cases, it is conjoined; and some of the animals which construct no nest are among those in which affection for their young is manifested in the highest degree.—The nest-making instinct seems an essential part of the constitution of those animals in which it appears at all.

NESTS, EDIBLE: important article of commerce between the Eastern Islands and China, and of luxury in China. They are nests of several species of Swallow (q.v.), of the genus *Collocalia*. The best known of these birds, *C. esculenta*, is about 4½ inches in length, 11 inches in expanse of wing, dusky black above, pale ash-color beneath. The nest is shaped like that of the common swallow, and adheres to a rock; vast numbers being



Chinese Swallow and Nest.

found together—often in absolute contiguity—in caves of the Eastern Archipelago, as those of the same and allied species are in other islands of the E. Indies. The nests themselves are formed of grass, sea-weed fibres, small leaves, etc., and are attached to the rock by a sort of bracket, made of a gelatinous substance, which is the part really eaten. This was formerly thought to be made of sea-weeds, but is now known to consist of saliva, which the swallow exudes from the salivary glands under the tongue. The nests are collected by

means of ladders, and often by means of ropes, which enable the gatherers to descend from the summit of a precipice, like the rock-fowlers of the north. The gathering of the nests takes place after the young are fledged, thrice in a year. In the Chinese market the nests are sold for $10 to $35 per lb., according to the quality; and they are of course used only by the most wealthy, chiefly for thickening rich soups. The imports at Canton are reckoned at 1,200 piculs, or 168,000 lbs., representing about 8,400,000 nests. The nests are very wholesome and nourishing, but quite devoid of the peculiar properties which the Chinese ascribe to them. Five caverns at Karang-Bollong, in Java, contain 330,000 swallows, and yield annually about 500,000 nests. The nests weigh about half an ounce each.

NET, a. *nĕt* [F. *net;* Sp. *neto;* It. *netto*, pure, clear, free —from L. *nitĕō*, I shine (see NEAT 1)]: pure; unadulterated; clear of all charges or deductions, as *net* profit, *net* weight: V. to receive or produce as clear profit. NET'TING, imp. NETTED, pp. *nĕt'tĕd.* NET is improperly written NETT. NET PROCEEDS, the amount or sum which goods produce after every charge is paid. NET PROFIT, the profit after deducting all expenses. NET SUM, the sum remaining after all proper deductions are made. NET WEIGHT, the weight of merchandise after allowance has been made for the casks, bags, or any inclosing material.

NET, n. *nĕt* [Goth. *nati;* Icel. *not* or *net;* Ger. *netz;* Bret. *neud*, a net]: a texture with open meshes, made of twine, thread, etc., used for catching fish or birds (see NETS): kind of lace made of flax or silk; a snare; an inextricable difficulty: V. to form as network; to take with a net. NET'TING, imp.: N. a piece of network; the process of forming meshes for nets. BOARDING-NETTING, netting of strong rope, stretched above the bulwarks of a ship, over the port-holes, etc., to a considerable height, to prevent entrance of boarders from hostile boats. In positions where boat attacks are feasible, ships are thus protected at night, and at other times when attempts at boarding are anticipated. HAMMOCK-NETTING, netting in the bulwarks of a ship, usually in the waist, to keep the hammocks of the crew when stowed there during the day; thus netted together, the hammocks form a valuable barrier against bullets. HATCHWAY-NETTING, netting of inch rope placed over an open hatchway during fine weather, to prevent persons from falling through. NET'TED, pp.: ADJ. made of network; in *bot.*, covered with raised lines disposed like the threads of a net. NETTY, a. *nĕt'-tĭ*, resembling a net or network. NETWORK, work formed with meshes like a net.

NETHER, a. *nĕth'ér* [Icel. *nedan*, under; *nedri*, lower: Ger. *nieder*, lower: AS. *neothan*, beneath]: lying beneath; in a lower place; opposed to *upper;* belonging to the regions below. NETH'ERMOST, a. superl. *-mōst*, lowest.

NETHERLANDS, *neth'ér-landz*, KINGDOM OF THE: in w. Europe; between 50° 43′ and 53° 36′ n. lat., and 3° 22′ and 7° 16′ e. long.; bounded n. by the North Sea, e. by Hanover and w. Prussia, s. by Liége, Belgian Limburg, Antwerp, E. and W. Flanders, w. by the North Sea. Its greatest length n. to s. is 195 English m., greatest breadth from the w., on the North Sea, to the extremity of Overyssel, on the e., 110 English m.; 12,630 sq. m.

Pop. 1859 (without Luxemburg, q.v.), 3,309,128. The following table gives the pop. 1888, with the area of the provinces, and the provincial capitals:

Provinces.	Area in Sq. Miles	Pop. 1888.	Provincial Capitals.
North Brabant	1980	510,249	Bois-le-Duc.
Gelderland	1950	511,273	Arnheim.
South Holland	1160	943,495	The Hague.
North Holland	1070	819,283	Haarlem.
Zeeland	690	201,847	Middelburg.
Utrecht	530	218,638	Utrecht.
Friesland	1280	339,030	Leeuwarden.
Overyssel	1290	295,696	Zwolle.
Groningen	800	276,052	Groningen.
Drenthe	1030	130,208	Assen.
Limburg	850	260,161	Maastricht.
	12,630	4,505,932	
Grand Duchy of Luxemburg	998	(1885) 213,283	Luxemburg.
Total	13,628	4,719,215	

The pop. (1880, Dec. 31), exclusive of Luxemburg, averaged 317 to the sq. m. In Drenthe it is 103, and in S. and N. Holland rises to 769 and 597; Utrecht, Limburg, and Zeeland being the next densely peopled. In 1871, the births amounted to 128,305, of which 4,599 were illegitimate; average 1 to 27·90: in N. Brabant, 1 to 44·38; Gelderland, 1 to 30·04; S. Holland, 1 to 22·73; N. Holland, 1 to 24·23; Zeeland, 1 to 26·30; Utrecht, 1 to 21·43; Friesland, 1 to 36·24; Overyssel, 1 to 45·07; Groningen, 1 to 22·54; Drenthe, 1 to 32·03; Limburg, 1 to 37·44.

The leading places are Amsterdam (pop. 400,000), Rotterdam (198,000), Dordrecht, Alkmaar, Middelburg, Schiedam, Leyden (46,000), Delft, Gouda, Utrecht (83,000), Amersfort, Groningen (54,000), Meppel, Zwolle, Kampen, Deventer, Arnheim (49,000), Nymegen, Tiel, Gorkum, Bois-le-Duc, Tilburg, Breda, and Haarlem (51,000.)

Physical Aspect.—The land is generally low, much of it being under the level of the sea, rivers, and canals, especially in N. and S. Holland, Zeeland, the s. part of Gelderland, and Friesland. Along the w. coast, the lowlands are protected from the sea by a line of sand-hills or dunes; and where that natural defense is wanting, strong dikes have been constructed, and are maintained at great expense, to keep back the waters. The greatest of these dykes are those of the Helder and of w. Kapelle,

on the e. coast of Walcheren (q.v.), which require each more than $30,000 annually to keep them in order. Engineers, called the officers of the Waterstaat, take special charge of the dikes and national hydraulic works, the expense of which is reckoned at about $2,-500,000. A hilly district stretches from Prussia through Drenthe, Overyssel, the Veluwe or Arnheim district of Gelderland, the e. part of Utrecht, into the Betuwe or country between the Maas and the Waal. This tract of country has many pretty spots, is of light sandy soil, well watered, and, when not cultivated, is covered with heath or oak-coppice. The greatest part of the N. is very fertile, the low lands and drained lakes, called Polders (q.v.), being adapted for pasturing cattle, and the light soils for cereals and fruits; but in some districts there are sandy heath-clad plains, extensive peat-lands, and undrained morasses, which industry is rapidly bringing under cultivation.

Islands, Rivers, Canals, etc.—The islands may be divided into two groups, of which the s. formed by the mouths of the Schelde and Maas, contains Walcheren, S. and N. Beveland, Schouwen, Duiveland, Tholen, St. Philippsland, Goeree, Voorne, Putten, Beyerland, Ysselmonde, Rozenburg, and the island of Dordrecht. The n. group contains the islands at the entrance of the Zuider Zee and along the coast of Groningen and Friesland, as Wieringen, Texel, Vlieland, Terschelling, Ameland, Schiermonnikoog, and Rottum. In the Zuider Zee are Marken, Urk, and Schokland. The chief rivers are the Rhine, Maas, and Schelde. Important branches of these are the Waal, Lek, Yssel, Roer, etc. Water-ways are more numerous than in any other European country, the immense tracts of meadow-land and the fertile polders being girdled by large canals, and cut in all directions by smaller ones for drainage and communication. Those of most importance to the national trade are: the N. Holland canal, constructed 1819–25, to connect the port of Amsterdam with the North Sea; the Voorne canal, from the n. side of Voorne to Hellevoetsluis, which shortens the outlet from Rotterdam; the s. Willemsvaart, through Brabant, Dutch and Belgian Limburg, from Bois-le-Duc to Maastricht, 71½ English m. in length, with 24 locks. Besides these, there are numerous important canals, connecting rivers, and cutting the kingdom into a network of water-courses. To improve the entrance to the Maas the Hoek of Holland has lately been cut. A new canal through the Y and peninsula of Holland was opened 1876, Nov. 1, nowhere less than 80 yards broad, with sluices nearly 400 ft. in length, and a depth of nearly 23 ft. This has reduced the distance from Amsterdam to the sea to about 16 m., and provides a safe way for large ships. The harbor, 52° 29′ n. lat. and 4° 36′ e. long., is formed by piers of concrete built into the North Sea. The expense, including the recovery of 15,000 acres of land from the Y, amounted to about $10,000,000. In 1890 there were 1,630 m. of railroad open for traffic, built with

state funds and operated by a company that pays the govt. a specified proportion of net profits. 1889, Jan. 1, there were 277 chief postal and 27 minor offices. During 1888, there were forwarded 187,782,345 letters and 4,084,-188 telegrams. Postal savings banks were established 1881, and at the close of 1888 the deposits were $5,541,440.

Climate, Agriculture, Produce, etc.—The climate is variable, chilly colds often closely succeeding high temperatures, inducing various forms of fever and ague, and requiring peculiar care as to clothing, etc. In summer, the thermometer sometimes rises above 80° and even to 90° F. in the shade, and a winter of great severity usually occurs every fifth year, when carriages and heavily laden wagons cross the rivers and the Y on the ice, and thousands enjoy the national pastime of skating.

The farms are generally small, and are well cultivated, though the implements are old-fashioned and clumsy. Much progress is being made in reclaiming the sandy wastes in Drenthe and Overyssel, by planting them with fir and oak, and sowing buckwheat, oats, and rye. The best implements are also being gradually introduced, and the steam-plow was, in 1862, put in operation on the lands of the drained Haarlem Lake. The following table shows the agricultural products, with their values, for a good year in the period 1870–80:

Wheat to the value of	$13,857,952
Rye	21,516,678
Barley	5,316,632
Oats	10,788,137
Beans	3,163,406
Pease	2,123,163
Buckwheat	3,967,811
Colza	3,287,115
Potatoes	20,967,741
Madder	1,350,441
Chicory	338,925
Flax	4,393,095
Hemp	222,977
Beet	1,915,185
Tobacco	822,929
Various	106,295
Total	$94,138,542

In 1879, wheat occupied 329,845 acres; rye, 496,966 acres; barley, 117,418 acres; oats, 282,143 acres; potatoes, 351,496 acres; buckwheat, 135,232 acres.

In 1886 there were 25,555 farm owners and farm tenants; arable land covered an area of 2,150,000 acres, and meadows 2,800,000. Farm-stock comprised 272,700 horses, 1,530,800 cattle, 802,700 sheep, 1,161,200 goats, and 458,-200 hogs. The leading agricultural products of Zeeland are wheat and madder; in S. Holland, madder, hemp, butter, and cheese; in N. Holland, butter and cheese are extensively made, and cattle, sheep, and pigs reared and exported. The horses of Friesland, Zeeland, and Gelderland are of first-rate quality. The exportation of butter from Holland and Friesland, and of Edam, Leyden, Gouda, and Frisian cheese, is large; 1887 the value of the exports of cheese was $4,328,316, of butter $25,

263,738. Fruit is abundant, and in several provinces, as Gelderland, Utrecht, and Drenthe, much attention is paid to bee-keeping. In Haarlem and neighborhood, tulips and hyacinths are much cultivated, realizing a large annual amount. In 1874, the foreign trade in bulbs reached, in the district, $182,250; inland sales $232,448. Wild ducks, snipes, plovers, and hares are plentiful; there are also conies, partridges, pheasants, and deer—game forming an article of export.

Geology, Mineralogy, etc.—The N. are of recent formation, and consist of an alluvial deposit, chiefly a deep, rich clayey soil, superimposed on banks of sand, marine shells, and beds of peat and clay. It appears that at some distant period there had been a depression of the land below its former level, enabling the sea to burst through its sand-banks, submerge the land, and form new deposits. The higher districts are composed of sand-drift mingled with fertile earths, and resting on a bed of clay. Coal is worked in Limburg; and a soft sandstone, which becomes fit for building purposes after having been some time exposed to the atmosphere, is quarried in the s. part of that province, which has also pipe and other clays. Valuable clays for pottery, tile and brick making, abound in the various provinces.

Manufactures, Industries, etc.—The chief manufactures are linen, woolen, cotton, and silk fabrics; paper, leather, glass, etc. Leyden and Tilburg are famed for woolen blankets, wool-dyed pilot, fine cloths, and friezes; Bois-le-Duc for linens and rich damasks; calicoes, shirtings, drills, table-cloths, striped dimities are made at Almelo, Amersfort, and in the leading towns of Overyssel. Good imitation Smyrna and Scotch carpets, and carpets of hair and wool, are manufactured at Deventer, Delft, Arnheim, Hilversum, Utrecht, and Breda; Turkey-red yarns, dyed silks, and silk stuffs at Roermond, Utrecht, Haarlem, etc.; leather, glass, firearms, at Maastricht and Delft; iron-founding, rolling and hammering of lead and copper, cannon-founding, are carried on at the Hague, etc.; and powder-mills at Muiden; Oudenkerk, Middelburg, Bois-le-Duc, Amsterdam, Nymegen, etc., have important breweries, those of 's Bois-le-Duc, and Amsterdam manufacturing very large quantities. Waalwyk, Heusden, and surrounding districts, manufacture boots and shoes, of which Heusden sends to N. and S. Holland 1,000,000 pairs yearly. Gin is distilled at Schiedam, Delft, Rotterdam, and Amsterdam; distilleries (1887) nearly 400. Amsterdam has the largest diamond-cutting trade in the world, 10,000 persons depending on that branch of industry. Sugar-refining was carried on by 12 establishments (1888), and there were then also 30 beet-root sugar factories, 57 salt-works, and 87 soap works. Paper is made chiefly in Holland and Gelderland. The leading letter-type founders are at Amsterdam and Haarlem. Manufactures of every kind are rapidly increasing in number, and adding to the material prosperity of the Netherlands. More than

1,000,000 cwt. of cocoa imported into the United Kingdom, 1888, was from N. The chief motive power is the windmill, which forms a never-failing element in the scenery; but of late years, steam is coming more into use.

Many people are employed in the immense inland shipping-trade which the canal network has fostered, there being about 7,000 ships inhabited by families. Fishing, not only in the inland waters, the coasts, and bays of the North Sea, but also on the coast of Scotland, is vigorously pursued. The total annual take has a value of millions of dollars. The anchovy take may amount to $250,000. There are productive oyster beds, besides extensive fishings of cod, ling, turbot, flounders, soles, shrimps, haddock, etc.; and from the rivers, salmon, eels, perch, etc.

Exports, Imports, Shipping.—The Dutch have long been famed for the extent and value of their sea trade and their commercial enterprise. The total annual value of imports into Holland (partly for home consumption, partly in transit to other countries) 1870–80 ranges from $225,000,000 to $335,000,000. In 1880, the chief articles of import were coffee, sugar, rice, cotton, cotton goods, tallow, petroleum, iron, flour, grain, drugs, timber, wool, tobacco. The exports ranged from $150,000,000 to $260,000,000 a year, the chief articles being coffee, sugar, butter, cheese, cotton, drugs, guano, hides, iron, rice, spirits, cattle (many of the most important items being first imported). During this period, the total value of the imports from Great Britain largely decreased; the exports to Great Britain largely increased. In 1888 the total imports were $440,780,625; exports $355,290,552. In 1887 the mercantile marine comprised 516 sailing vessels and 460 steamers, with 14,565 sailors.

Religion.—At the census, 1879, there were 2,469,814 Protestants, 1,439,137 Roman Catholics, 81,693 Jews, and 22,049 belonging to small sects. The Protestants belong to various confessions, a large proportion of the clergy being 'advanced' in their views.

Language and Literature.—The language of the N., called in Britain and America usually *Dutch*, but by the Netherlanders *Nederduitsch* or *Nederlandsch*, is one of the Low German languages, or languages of the Aryan family spoken in the lowlands of the Teutonic part of Europe, in contrast to the High German of Upper Germany. The principal Low German languages are Old Saxon (and in some respects Gothic), modern Low German or Platt-Deutsch (spoken by some millions in n. Germany, and having a copious literature distinct from the literary High German, which is now the usual medium for all educated Germans), Anglo-Saxon or Old English, modern English, Dutch, Flemish, and Frisian. Frisian, considerably different from Dutch, is the popular tongue in a considerable part of the N. (see FRISIANS). Flemish (q.v.), hardly dialectally different from Dutch, and mainly distinguished by having another way of

spelling certain double vowels, is spoken in some parts of the kingdom of the N., as well as in the Flemish provinces of Belgium. The Dutch alphabet consists of the same letters as the English; but the vowels are sounded essentially as in French, while in inflection of nouns and construction of sentences and of words, the Dutch resembles the German. To form the plural *en* or *n* is added to the singular. The Dutch, with its almost unequalled facility for formation of compound and technical words, with its great breadth of inflections, and with its notable force and simplicity has some advantages over both German and English.

The early history of Dutch and Flemish can scarcely be separated; but the seat of literary culture was at first mainly in the region where the form now spoken is Flemish rather than Dutch: for the material common to both forms or dialects, see FLEMISH LANGUAGE AND LITERATURE. Dutch writers came to be of European fame in the 16th c.; and during the 17th c. Holland was not merely a powerful commercial and military state, but was pre-eminently in the front rank of European literature. Many of its most famous sons wrote mainly or wholly in Latin, as Erasmus, Grotius, Huygens, Spinoza, Boerhaave (see these titles). Hooft, historian and poet (1581–1647); the popular poet Cats (1577–1660); Vondel (1587–1679), a truly great poetical genius, are names of which any country might be proud. Van der Goes, Coster, Rotgans, Heemskerk, Brandt, are other vernacular writers of the same period. In the 18th c., French influence predominated; Van Haren, Bellamy, Van Deken, are notable representatives of the period. In the 19th c., there was a revival of national feeling, represented in literature by Rhijnvis Feith and the greatest of modern Dutch poets, Willem Bilderdijk (1756–1831); Tollens (1780–1856) is a well-known poet; and Van Lennep (1774–1853) is a powerful romance writer. Holland did much for classical philology and for science in the 17th and 18th c.; was long a centre of theological scholarship (in which department it has again become prominent); and in art, the names of Rembrandt, Gerard Dow, Jan Steen, Paul Potter, and Ruysdaal indicate the share that the N. have had in European culture.

Education.—There are ancient universities at Leyden, Utrecht, and Groningen; since 1877, there has been a new university at Amsterdam, supported by the municipality. The four universities have more than 3,000 students. The Polytechnic Institute at Delft has 275 pupils. There are Latin schools in the chief towns. There are also the Royal Military and Naval Acad. at Breda, and that for engineers and the India civil service at Delft; seminaries in several places for the training of the Rom. Cath. clergy; and others, especially in Amsterdam, for those of the smaller Prot. sects; and many literary, scientific, and agricultural institutes.

Each community or parish must have, at least, one

elementary school, supported from the local public funds, in which reading, writing, arithmetic, history, geography, etc., are taught. A higher class of schools includes also foreign languages. All are under government inspectors, and the teachers must undergo stringent examinations on all the branches before obtaining permission to teach. Many society or subscription schools have been erected all over the land, with a normal school at Nymegen, not under government surveillance, and including religious instruction, which is excluded from the national public schools. There are several national normal schools. Under the provisions of the Primary Instruction law of 1878, the state pays 30 per cent. of the expenditure on the public schools, and the communes or parishes 70 per cent. In 1886, there were 2,936 public schools, 65 subsidized private schools, 1,127 non-subsidized private schools, 444,678 pupils in public schools, 590,595 children under 12 years of age receiving some kind of school education, and 74,156 receiving none. It is believed that of the rural population about 20 years ago, a fourth of the men and a third of the women could neither read nor write.

Army, Navy, etc.—The strength of the army in Europe, 1888, was 2,334 officers and 62,779 men; of the colonial army in India, 1,495 officers and 33,999 men. It is composed of volunteers, and of a varying proportion of men drawn by lot for five years' service. There is also a local force, called the Schuttery, drawn by lot from those between 25 and 34 years of age, to assist in keeping order in peace, and in case of war, to act as a mobile corps, and do garrison duty. If attacked on the land side, 90,000 men are required for the defenses, and if by land and sea, 106,000. The first, or Maas line of defense, is formed by Maastricht, Venlo, Graves, Bois-le-Duc Woudrichem, Geertruidenberg, Willemstad, Breda, and Bergen-op-Zoom. The second line is formed by Nymegen, Forts St. Andries and Loevestein and Gorinchem. The inner line of Utrecht is formed by various forts from Naarden, Utrecht to Gorinchem, which, by inundations, can make the provinces of North and South Holland into an island. There are many other forts, batteries, and strongholds at the mouths of the rivers, and a new line of defense was agreed upon 1874.

The royal navy consisted, 1887, of 120 men-of-war, 24 being iron-clads. There were 6 large cruisers, each of 3,400 tons, of iron and steel, beside numerous torpedo boats for coast and harbor defense.

Revenue, Expenditure, etc.—The revenue of 1890 was estimated $49,129,740, and the expenditure at $54,704,-160. The principal receipts are from direct taxes, excise, indirect taxes, import and export dues. The India revenue, 1890, was estimated $51,890,220, expenditure $56,862,000. The E. India colonies, formerly a burden, have long been a source of profit.

From the national debt there was paid off, 1850–74, $123,408,419; in 1880, the debt amounted to $382,001,-

909; and the annual interest payable on it was $11,314,-080. In 1888 the debt proper was more than $427,680,000, beside $6,075,000 in paper money. The material prosperity of the N. is increasing, and probably not less than $1,500,000,000 is invested by N. capitalists in the funds of other nations.

Colonies.—The colonies of the N. are said to have an area of more than 700,000 sq. m. (more than three times the area of the German Empire); pop. about 30,000,000. The colonies are in two groups: (1) the E. Indian possessions, including Java and Madura, Sumatra, the Moluccas, Celebes, Timor, parts of Borneo, and part of New Guinea; and (2) the W. Indies, of which the chief are Surinam and Curaçao. The factories on the coast of Guinea were sold to Great Britain 1872. For the principal colonies, see the separate titles.

Government, Franchise, etc.—The govt. is a limited constitutional monarchy, hereditary in the male line, and by default of that, in the female. The crown-prince bears the title, Prince of Orange, and attains his majority at the age of 18, when he takes his seat in the council of state. The executive is vested in the king, with a council of state composed of 12 members, nominated by the sovereign, and the ministers of the Interior, Foreign Affairs, Finance, War, the Colonies, Marine, and Justice, the last-named taking charge of ecclesiastical affairs through two administrators, or under-secretaries of state, for the Prot. and Rom. Cath. Churches. The legislative power is shared by the king and the two chambers of the states-general; the first chamber having 39 members, elected for nine years by the provincial states, one-third of their number retiring every three years. The second chamber has 80 members chosen by electors numbering (1882) 126,290, above 23 years of age, who pay from about $8.25 to about $43.80 of direct taxes, according to the size and importance of the electoral district. These are elected for four years, one-half of the chamber retiring every two years. For members of the town councils, the electoral qualification is half the above sums. The members of both chambers must be 30 years of age before the day of election, and those eligible for the first chamber are the nobility. This exceedingly high franchise, which, in Amsterdam, is a higher direct tax than the rental qualification of Great Britain, makes an election a thing of no interest except to a few. In 1871, only 36·2 per cent. of the electors of N. Holland gave their votes, and the maximum in any place was 66·9 per cent. in Limburg, 62·5 in N. Brabant, the average being 48·6.

The king nominates the governors of provinces, the burgemeesters of every city, town, or village, and a host of other officials. The cities, towns, and rural parishes are governed by a council, burgemeester (mayor or provost), and wethouders (aldermen orbailies). The council consists of from 7 to 39 members, according to pop., chosen for six years, one-third part retiring every two

years. The council selects out of their number 2 to 4 wethouders for six years, one-half retiring every third year. These with the burgemeester, form the local executive. The law departments are the high council, the provincial courts of justice, those of the arrondissements and cantons; appeal in many cases being open from the lower to the higher courts.

History.—Nothing is known regarding the original inhabitants of the N.; but about a century and a half before our era, the people known as the Batavi came out of Hesse, where they were living in hostility with their neighbors, and settled down between the Rhine and the Waal. At this time, the Frisians occupied the country n. of the Rhine to the Elbe. The Batavi and Frisians differed little in appearance, manner of life, and religion. They clothed themselves with skins, lived by fishing, hunting, and pasturing cattle, possessing horses, cows, and sheep; were faithful, open-hearted, chaste, and hospitable. The songs of the bards were their literature and history. Warlike and brave, they selected their leader for his courage and prowess, were armed with the bow and a short spear. They worshipped the sun and moon, and held their meetings in consecrated woods.

The Romans having subdued the Belgæ, next attacked the Frisians, who agreed to pay a tribute of ox-hides and horns, but continued restless and rebellious. The Batavi became allies of Rome, paying no tribute, but supplying a volunteer contingent, chiefly of cavalry, which decided the battle of Pharsalia in favor of Cæsar, and formed a gallant band of the Roman armies in all parts of the empire. About A.D. 70, Claudius Civilis, a Batavian, whose original name has not been preserved, made a bold effort to overthrow the Roman power in Rhenish or Germanic Gaul, but was compelled to sue for peace. Toward the close of the 3d c. began the inroads of the Franks, followed by the Saxons and other races; and in the 5th c., the Batavi had ceased to exist as a distinct people. The Franks continued to spread, and with them the Christian religion, Dagobert I., one of their princes, erecting a church at Utrecht, which, 695, became the seat of a bishopric. The Frisians were opposed to, and the last to embrace, Christianity, to which they were forcibly converted by Charles Martel. At the end of the 8th c., all the Low Countries submitted to Charlemagne, who built a palace at Nymegen, on the Waal. The feudal system now began to develop itself, expanding into dukedoms, counties, lordships, and bishoprics, which the dukes, counts, and bishops, especially the counts of Holland and bishops of Utrecht, endeavored to enlarge and to rule over with as little submission to their superior as possible. The Crusades weakened the power and drained the resources of the nobles and priesthood, so that during the middle ages, cities began to assume importance, strengthen themselves with walls, choose their own rulers, and appear in the state meetings. In 1384, the county of Flanders passed, through marriage, to the

Duke of Burgundy, whose grandson, Philip the Good, made it his special life-effort to form the N. into a powerful kingdom. He bought Namur, inherited Brabant with Limburg, and compelled Jacoba of Bavaria to resign Holland and Zeeland. Charles V., as heir of the house of Burgundy, inherited and united the N. under his sceptre, and the country attained prosperity, through the encouragements which he gave to commerce and shipping. Philip II., who succeeded his father, 1555, by his harsh government and his persecution of the Reformers, excited the N. to rebellion, which, after a struggle of 80 years, resulted in the firm establishment of the Republic of the United Provinces. The founder of the independence of the N. was William of Nassau, Prince of Orange, called in history the Silent, who freely sacrificed his own property, and put forth every effort to unite the discordant states of the south with those of the north in resisting the Spanish yoke. Retiring to Holland, and banding together several provinces for mutual defence, by an agreement at Utrecht, 1579, he perseveringly opposed the efforts of Spain; and 1609, the independence of the United Provinces (whose boundaries nearly coincided with those of the present kingdom of the N.), was virtually acknowledged by the Spanish king, an armistice for 12 years being signed at Antwerp, Apr. 9. The struggle was renewed and carried on till 1648, when all the powers acknowledged the independence of the United Provinces by the treaty of Münster, while the Belgic provinces, divided among themselves, remained submissive to Spain and to the Rom. Cath. Church.

Prince William the Silent did not live to see his efforts for freedom crowned with success. Excited by religious fanaticism, and the hope of a great reward, Balthazar Gerard or Guion, 1584, shot the prince in his house at Delft, from a narrow passage, as he was stepping from the dining-room to ascend an adjoining stair which led to the second floor. With the 17th c., the United Provinces began to advance in power and wealth, their ships visiting all parts of the world. Meanwhile, the contest between the Arminians and Calvinists broke out, and raged with fury many years; Grotius and others fleeing to other lands, and the statesman Oldenbarneveld suffering on the scaffold at the age of 72. The United Provinces were presided over by the Princes of Orange till the troubles at the end of the 18th c. began the long European war, which the battle of Waterloo brought to a close. The national convention of France having declared war against Great Britain and the Stadtholder of Holland, 1793, French armies overran Belgium, 1794; and being welcomed by the so-called patriots of the United Provinces, 1795, Jan., William V. and his family were obliged to escape from Scheveningen to England in a fishing junk, and the French rule began. The United Provinces now became the Batavian Republic, paying about $41,352,000, for a French army of 25,000 men, besides giving up important parts of the country along

the Belgian frontier. After several changes, Louis Bonaparte, 1806, June 5, was appointed king of Holland, but, four years later, was forced to resign because he refused to be a mere tool in the hands of the French emperor. Holland was then added to the French Empire, and formed seven departments. The fall of Napoleon I., and dismemberment of the French Empire, led to the recall of the Orange family, and the formation of the Southern and Northern Provinces into the ill-assorted Kingdom of the N., which, in 1830, was broken up by the secession of Belgium. In 1839, peace was concluded with Belgium; but almost immediately afterward national discontent with the government showed itself, and William I., 1840, abdicated in favor of his son. The N. being moved by the revolutionary fever of 1848, King William II. granted a new constitution, according to which new chambers were chosen; but they had scarcely met when he died, 1849, Mar., and William III. ascended the throne.

A bill for the emancipation of the slaves in the N. West India possessions was passed 1862. It decreed a compensation of 300 guilders for each slave, except those of the island of St. Martin, who were to be compensated for at 30 guilders each. The law came into force 1863. In the budget, 1863, provision was made for the expenses of emancipation to the amount of $5,183,000, of which $4,217,955 was compensation for the slaves of Surinam, and $103,381 premiums for free labor. For Curaçao and its dependencies. $808,027 of compensation money, fully $58,000 being for various other outlays connected with the change. The number of slaves set free may be stated in round numbers 42,000, of whom 35,000 are in Dutch Guiana.

1863, July 16, a treaty was signed at Brussels, by all the naval powers, for the buying up of the toll levied, under treaty arrangements, by the king of the N., on vessels navigating the Scheldt (q.v.), the king of Belgium binding himself also to reduce the harbor, pilot, and other charges on shipping within that kingdom.

In 1868, the Luxemburg question ended in an advantage for the N. (see WILLIAM III.). Next year, capital punishment was abolished. In 1870, the chief subject of interest was the colonial policy. On the outbreak of the Franco-German war, the N. declared their neutrality; and since then much has been done to strengthen the army and national defenses. In 1873, a very tedious and difficult war broke out with the small state of Atcheen, in the n. of Sumatra. Of late, in spite of somewhat frequent changes of ministry, the prosperity and progress of the N. have been manifest; and various reforms have been made in finance, the army, the educational system, and the penal code.

The N. have suffered much from floods, caused either by the breaking in of the sea, or by the descent of masses of water from Germany, while the rivers of the Rhine delta were blocked up with ice. The Zuider Zee (q.v.), which contains 1,365 sq. miles, was of insignificant extent

till the flood of All Saints' Day, 1247, when the North Sea swallowed up a large tract of country. In 1277, the Dollart Gulf, in Groningen, was formed at the mouth of the Ems, by floods in the spring and autumn of that year, which destroyed 33 villages and 100,000 people. The immense waste of waters, known as the sunken South Holland Waarde, or Biesbosch, resulted from the breaking of one of the dikes, 1421, by which 72 villages were laid under water, only 34 of them reappearing. In modern times, great floods, but fortunately with only temporary results, have occurred 1809, 25, and 55. That of 1855 placed the town of Veenendaal, in Gelderland, and an extensive tract of country under water, a thaw in Germany having sent down torrents of water, while the rivers of Holland were still frozen.

See the histories of the N. by Bilderdijk (12 vols. 1839), Groen van Prinsterer, Arend, Nuyens, Wijnne (5th ed. 1879), Wenzelburger, Kemper, and Motley (*History of the United Netherlands*, 4 vols.). For statistics, see works by Van Heusden, Rijkens; the *Allgemeene Statistiek van Nederland;* the *Staatskundig Jaarboekje ;* and other annual reports.

NETHERLANDS TRADING COMPANY: chartered joint-stock association, with limited liability, formed to aid in developing the natural resources of the Dutch E. Indian possessions. The company possesses peculiar privileges, acting exclusively as the commission-agents of the Netherlands govt. in importing and selling the produce of the colonies, as well as doing a large business as merchants. Private enterprise having failed to develop the trade of Java, after that island was restored to the Netherlands, King William I., 1824, erected the Trading Company, with a capital of about 15 million dollars, not only becoming a large shareholder, but guaranteeing an interest of 4 per cent. on the paid-up capital. The early transactions were unprofitable; and in 1827 the king had to pay a part, and in 1830 the whole of the guaranteed interest. From that date, it has prospered and transferred, from the trade of Java (q.v.), large surplus balances into the national revenue. The head office of the directors is at Amsterdam, with agents at Rotterdam, Middelburg, Dordrecht, and Schiedam; the principal factory at Batavia, with agencies at the chief ports in Java and the other Netherland possessions in the Eastern Archipelago. Formerly the company sent large quantities of goods to the colonial markets for the account of the Dutch govt.; but since the beginning of 1875, the business for the govt. has been confined to colonial produce, which is placed in factories, forwarded to Holland, and disposed of at the company's sales in Amsterdam, Rotterdam, etc. In 1875, they sold for the govt. 756,959 bales of coffee, which realized $21,300,390; 136,768 blocks of Banca and 2,956 of Billiton tin, at $1,831,906; 432 packages of cinchona bark and powder at $29,078. On the company's account, colonial produce was sold to the value of $3,703,563; and calicoes,

yarns, woolen stuffs, various goods, precious stones, and money, to the value of $1,044,457, were sent to Netherlands-India, Singapore, British India, China, Japan, and Surinam. The company also advance money to planters and manufacturers in the colonies, who bind themselves for a number of years to consign their produce. They are also owners of a large sugar plantation, Resolutie, in Surinam. The present capital is 36,140,000 guilders, or nearly $15,000,000. The commission paid by govt. is a chief source of profit. For 1875, the net gain was $877,422, from which the shareholders received 5⅘ per cent. The result would have been more favorable had not heavy loss been sustained in the Japan trade.

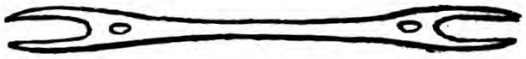
The success of the Trading Company depends mainly on the culture system, introduced into Java, 1830. Under native rule, the land belonged to the princes, and the cultivators paid one-fifth of the produce, and one-fifth of their labor as ground-rent. The Dutch, by conquest, are now proprietors of the greater part of the island, and exact the old produce rent, relaxing the labor to one-seventh, and causing the holders of crown-lands to plant one-fifth of their cultivated fields with the crop best adapted for the soil and required for the European market. The govt. also has supplied, free of interest, enterprising young men with the capital necessary to erect and carry on works for preparation of the raw materials, to be repaid in ten yearly instalments, beginning with the third year. Sugar, tobacco, and tea are prepared by contractors; indigo, cochineal, coffee, cinnamon, and pepper by the natives under European surveillance, all passing into the Trading Company's factories for shipment to the Netherlands. The objections to the system are, that it does not leave the labor of the natives free, and that the passing of so much of the export and import trade through one favored company injures the general merchant. On the other hand, it must be said that the Dutch govt. only carries out the old law, and it is therefore not regarded by the peasantry as an infringement of their rights; and the merchants and capitalists of the Netherlands did not of themselves put forth sufficient efforts to work out the natural capabilities of Java when it returned under Dutch rule.

NETHINIM, n. plu. *nĕth'ĭ-nĭm* [Heb.—from *nathan*, to give—*lit.*, those given to God]: among the *anc. Jews*, the servants of the priests and Levites about the Temple.

NETLEY, *nĕt'lĭ*, ROYAL VICTORIA HOSPITAL AT: superb building, on the shore of Southampton Water, England, for the reception of invalids from the army on foreign service, and from among the troops serving in the adjoining military districts. In times of peace, it is necessary to use only a portion of the vast structure, which gives accommodation for 1,000 patients, with power to increase the number. The medical staff varies in proportion to the work to be done. Attached is the Medical School for candidates for the army medical de-

partment. N. is also the headquarters of the female nurses of the army, who are under the control of a lady supt. stationed here. Some questions have been raised as to the salubrity of the site, adjacent as it is to the wide banks of mud which Southampton Water uncovers at low tide.

NETS: fabrics in which the threads cross each other at right angles, leaving a comparatively large open space between them; the threads are also knotted at the intersections. In this respect, netting differs essentially from weaving, where the intersecting threads simply cross each other. The open spaces in nets are called *meshes*, and these correspond in size with an instrument used in net-making, consisting of a flat piece of wood or other hard substance, usually about the shape and size of a common paper-knife. In addition to this, a peculiar kind of needle (see cut) is used, upon which a large quantity of the thread is placed, by winding it from end to end between the forked extremities; the holes are



used to insert the end of the thread, to prevent it slipping off at the commencement of the winding. The art of net-making has been practiced from earliest times by the most savage as well as the most civilized nations. Even where the art of weaving was quite unknown, as in some of the South Sea Islands when first discovered, that of netting was well understood; and it is easy to see that the human race could not help learning the value of this art from seeing how frequently land and water animals become entangled in the shrubs and weeds through which they attempt to pass; hence we find among savage tribes, almost universally, nets are used not only for fishing but also for entrapping land animals. We have ample illustrations of the uses of nets for both purposes in the bas-reliefs of Assyria, Greece, and Rome, and in the mural paintings of Egypt.

Until recently, nets have been always made by hand, and generally the thread has been a more or less thick twine of hemp or flax, the thickness of the twine and the size of the mesh depending on the kind of fish for which it was made; recently, however, great improvements have been made in the manufacture of nets by delicate automatic machinery. The raw materials are hemp, flax, and cotton, the last extensively employed for herring and sprat nets of late years. Hemp, however, is the chief material for net-making; and it is first passed in long rolls through a machine consisting of two rollers with blunt ridges, the upper of which is kept down on the material by a hanging weight, consisting of a loaded box suspended to a chain from the axle of the roller. After the fibre has passed through this, it is much more

supple than before, and is then *hackled;* this process also is done by machinery. It subsequently passes through the carding, roving, and spinning processes, as in all other kinds of yarn, and is finally twisted into threads or twines of the required thickness. After the net comes from the loom, it goes to the finishers, who, by hand, make the addition of a kind of selvage, consisting of several thicknesses of twine, to give strength to the edges.

A great variety of nets are in use among fishermen, but the principal are the *seine*, *trawl*, and *drift nets*. The seine is a very long but not very wide net, one side of which is loaded with pieces of lead, and consequently sinks; the other, or upper, is buoyed with pieces of cork, and consequently is kept up to the surface. Seines are sometimes as much as 190 fathoms in length. When stretched out, they constitute walls of net-work in the water, and are made to inclose vast shoals of fish. The trawl is dragged along the bottom by the fishing-boat; and the drift-net is like the seine, but is not loaded with lead; it is employed usually for mackerel fishing. Various kinds of nets are used in bird-catching (e.g., see CLAP-NET). Nets are used by gardeners to protect crops from birds; also to protect the blossoms of trees from frost, and it is wonderful how well this object is accomplished, even when the meshes are wide.

NETTLE, n. *nĕt'l* [Ger. *nessel;* Low Ger. *nettel;* Norw. *netla;* Dan. *nælde*, a nettle: comp. Icel. *nötr*, a nettle—from *nötra*, to shiver]: a well-known stinging-plant; the *Urĭcă dioĭ'ca*, *U. ūrens*, etc., ord. *Urtĭcăcĕæ* (see below): V. to irritate; to provoke; to excite feelings of displeasure or uneasiness in. NETTLING, imp. *nĕt'lĭng:* ADJ. irritating. NETTLED, pp. *nĕt'ld.* DEAD-NETTLE, a plant which does not sting, whose leaves resemble the true nettle; the *Lāmĭŭm album* with white flowers, the *L. purpūrĕŭm* with red flowers, ord. *Labĭātæ.*

NETTLE (*Urtĭca*): genus of plants of nat. order *Urticeæ*, having unisexual flowers, the male and female on the same or separate plants; the male flowers with a 4-parted perianth, and four stamens; the female flowers with a 2-parted perianth and a tufted stigma; the fruit an achenium. The species are herbaceous plants, shrubs, or even trees, many of them covered with stinging hairs, which pierce the skin when touched, and emit an acrid juice, often causing much inflammation and pain. When a N. is grasped in such a way as to press the hairs to the stem, no stinging ensues; but the slightest inadvertent touch of some of the species produces very severe pain. The stinging of the native nettles of western countries is insignificant in comparison with that of some E. Indian species. *U. crenulata* is particularly notable for the severity of the pain which it produces, without either pustules or apparent inflammation. The first sensation is merely a slight tingling, but within an hour violent pain is felt, as if a red-hot iron were continually applied, and the pain extends far from the original spot, continues for about

24 hours and then abates, but is ready to return in its original intensity on the application of cold water, and does not cease for fully eight days. Cold water has a similar effect in increasing or renewing the pain of all kinds of nettles. Still more formidable than this species is *U. urentissima*, the *Devil's Leaf* of Timor. In temperate climates a venomous, but rare species is the ROMAN N. (*U. pilulifera*); next is the SMALL N. (*U. urens*), frequent about towns and villages, and in waste and cultivated ground; while the least venomous is the most common and only perennial species, the GREAT N. (*U. dioica*), everywhere abundant, particularly near human habitations, or their former sites, whose desolation it makes manifest. The roots of nettles, boiled with alum, afford a yellow dye; and the juice of the stalks and leaves has been used to dye woolen stuffs of a beautiful and permanent green. The young shoots of *U. dioica* are used in parts of Scotland and other countries instead of spinach, and their peculiar flavor is much relished by some. Whatever it is that gives nettles their stinging power, is dissipated by boiling. The high value of nettles as food for swine, is well known to the peasantry of many countries; the Great N. is cultivated in Sweden for fodder of domestic animals; nettles are highly esteemed as food also for poultry, particularly for turkeys. The seeds are extremely nutritious to poultry; and are given to horses by jockeys, to make them lively when they are to be offered for sale. The stalks and leaves of nettles are employed in parts of England, for the manufacture of a light kind of beer, called *N. beer*, sold in some humble shops. The *bast* fibre of nettles is useful for textile purposes. Yarn and cloth, both of the coarsest and finest descriptions, can be made of it. The fibre of *U. dioica* was used by the ancient Egyptians, and is still used in Piedmont and other countries. When wanted for fibre, the plant is cut in the middle of summer, and treated like hemp. *N. Cloth*, or *Grass Cloth*, is a beautiful fabric made from Rheea (q.v.) fibre, or *Bœhmeria* (q.v.) *nivea*. See also GRASS CLOTH and CHINA GRASS.—The fibre of *U. cannabina*, native of Siberia, and of central Asia, is much used; and from that of *U. Whitlawi*, both fine lace and strong ropes can be manufactured. The fibre of *U. Japonica* is much used in Japan, and that of *U. argentea* in the South Sea Islands; that of *U. Canadensis* is used in Canada.—The seeds and herbage of *U. membranacea* are used in Egypt as emmenagogue and aphrodisiac; and somewhat similar properties are ascribed to *U. dioica*.—*U. tuberosa* produces tubers, which are nutritious, and are eaten in India, raw, boiled, or roasted.—Australia produces a magnificent tree-nettle, *U. gigas*, abundant in parts of New South Wales, ordinarily 25 to 50 ft. high, but sometimes 120 or 140 ft., with trunk of great thickness, and very large green leaves, which, when young, sting violently. In some places, it forms *scrub* forests, and its stinging leaves form a great impediment to the traveller.

NET'TLE-RASH, or URTICARIA, *ėr-tĭ-kā'rĭ-a* [Lat. *urtica*, a nettle]: common form of eruption on the skin. The eruption consists of wheals, or little solid eminences of irregular outline, and either white or red, usually both red and white, there being a white centre with a red margin. The rash is accompanied with great heat, itching, and irritation; the appearance on the skin and the sensation being like the appearance and feeling produced by the stinging of nettles.

The disease may be either acute or chronic. In the acute form, feverishness usually precedes the rash by a few hours, though sometimes they commence together. The disorder is always connected with some derangement of the digestive organs, and it may often be traced to the imperfect digestion of special articles of food, such as oatmeal, the kernels of fruit, strawberries, cucumbers, mushrooms, and especially oysters, mussels, and crabs, which are eaten with perfect impunity by most persons. An hour or two after the offending substance has been swallowed, there is a feeling of nausea, with oppression about the pit of the stomach; the patient often complains of giddiness, and the face frequently swells; the skin then begins to tingle, and the eruption breaks forth; vomiting and diarrhea often supervene, and act as a natural cure; but even when they do not occur, the violence of the rash usually subsides in a few hours, and the disorder altogether disappears in a day or two.

The chronic form is often very troublesome, and frequently comes on periodically in the evening. Cases are reported in which persons have been afflicted for ten years continuously by this form of the disease. Patients have left off all their customary articles of diet, one by one, without in all cases meeting with relief; hence it may be inferred, that though the disease depends in all cases on a disordered condition of the digestive organs, it is not always the consequence of some special offending article having been swallowed.

The main treatment of the acute form consists in expelling the offending matter by an emetic and by purgatives, and the cure is thus usually completed. In the chronic form, the patient should, in the first place, determine whether the rash is caused by any particular article of diet, and if this seems not to be the case, an attempt must be made to improve the state of the digestive organs. A few grains of rhubarb taken daily, just before breakfast and before dinner—or some similar medicine—will sometimes effect a cure. It is said that though external applications are usually of little avail, dusting the itching surface with flour sometimes affords temporary relief; and that a still more useful application is a lotion composed of a drachm of the carbonate of ammonia, a drachm of the acetate of lead, half an ounce of laudanum, and eight ounces of rose-water.

NETTLETON, *nĕt'tĕl-ton*, ASAHEL, D.D.: 1783, Apr. 21—1844, May 16; b. North Killingworth, Conn. After graduating at Yale College 1809, he studied theology at Yale Divinity School; and, 1811, was licensed as a Congl. preacher; but was not ordained till 1817, when he became an evangelist or revivalist. He had intended entering the mission field, but finding his preaching so acceptable and effective at home, he decided to remain, and for several years he conducted revivals in 40 of the chief towns of Conn., Mass., and N. Y. In 1822 he suffered from a severe attack of typhus fever; but 1824 resumed his labors, publishing also a volume of *Village Hymns*. His health still being feeble, he went, 1827, to Va., returning 1829, and preaching in New England and N. Y. till 1831, when he visited Great Britain. In 1832 he declined a professorship in the new theol. seminary at East Windsor, but took up his residence there and lectured sometimes. His style of preaching was very impressive, his manner solemn, almost to awfulness, his subjects usually doctrinal. He maintained the old and strict theology as against the New Haven theology, then beginning to have currency among the Congl. churches.

NETTLE-TREE (*Celtis*): genus of deciduous trees of nat. order *Ulmaceæ* with simple and generally serrated leaves, considerably resembling those of the Common Nettle, but not stinging. The genus is distinguished chiefly by its fruit, a fleshy, globose, or sub-globose 1-celled drupe. The Common or European N.-T. (*C. Australis*) is a native of s. Europe, w. Asia, and n. Africa. It grows to the height of 30–40 ft., and is a very handsome tree, often planted along public walks in s. France and n. Italy. The wood is very compact, very durable, and takes high polish. It was formerly much imported into Britain for the use of coachmakers. It is used in Italy by musical-instrument makers for flutes and pipes. The flowers are inconspicuous, axillary, and solitary; the fruit black, resembling a small wild cherry, not eatable till after the first frosts, and then very sweet. The kernel yields a useful fixed oil. The tree thrives in s. England.—*C. occidentalis* is a native of N. America from Canada to Carolina, sometimes there called the N. T., sometimes the SUGAR BERRY. Its leaves are much broader than those of *C. Australis*, its fruit very similar. It is a much larger tree, attaining a height of 60–80 ft.—Another American species, *C. crassifolia*, often called HACKBERRY or HAGBERRY, and HOOP ASH, is very abundant in the basin of the Ohio and westward of the Mississippi. It grows to a great height, but the trunk is not very thick. The wood is not much valued, but is said to make very fine charcoal. The fruit is black, and about the size of a pea.—The inner bark of *C. orientalis*, consisting of reticulated fibres, forms a kind of natural cloth, used by some tribes of India.—A number of other species are natives of warm parts of America and Asia.

NEU-BRANDENBURG, *noy-brân'dĕn-bûrch:* town of Mecklenburg-Strelitz, the prettiest and, after the capital, largest in the duchy; on Lake Tollens, 17 m. n.n.e. of Neu-Strelitz. It is regularly built, contains two churches, a castle, etc., is the centre of a picturesque district, and the seat of considerable industry. About half a league from N., on a rock overlooking Lake Tollens, stands the ducal pleasure-castle of Belvedere, commanding, it is said, the most beautiful prospect in Mecklenburg.—Pop. of town (1880) 8,406.

NEUBURG, *noy'bûrch:* ancient town of Bavaria, picturesquely situated on the right bank of the Danube, 29 m. n.n.e. of Augsburg. It contains a handsome palace, the château of the Dukes of Bavaria of the line of Pfalz-Neuburg, who resided here 1596–1742. The palace contains a collection of ancient armor. Brewing and distilling are carried on, and there is considerable commercial trade on the Danube. Pop. (1880) 7,690.

NEUCHATEL, or NEUFCHATEL, *nĕh-shâ-tĕl';* known also as NEUENBURG, *noy'ĕn-bûrch:* canton in w. Switzerland, between Lake N. and the French frontier; greatest length about 30 m., average breadth 11 m.; 310 sq. m. N. lies in the midst of the Jura Mountains, four chains of which, running from n.e. to s.w., traverse the canton, and are separated by elevated longitudinal valleys. The most easterly of these is a broken chain, running parallel to the Lake of N., on whose banks, and on the second and lower ranges beyond it, the vine is carefully cultivated. This second chain has five principal passes, the highest of which, La Tourne, has an elevation of about 4,000 ft. The third and fourth ranges, abutting on France, consist mostly of barren hills, separated by elevated valleys; but here and there these high lands are well wooded and fruitful, producing corn, good pasture, fruits, etc. The greater number of the numerous streams which water the canton flow into the Rhine. Among these mountain torrents, the principal are the Reuse, the Seyon, and the Serriere, the two former of which, with the rivers Orbe and Broie, are the feeders of the Lake of N. (q.v.) The climate of N. varies greatly with the locality; temperate on the shores of the lake, cooler in the valleys, and severe on the mountains-sides.

The natural products are iron ores, coal, asphalt (the most valuable mineral product), and fruit, including grapes—from which good red and white wines are made—timber and corn, though the latter is not sufficient for the home consumption. The rearing of cattle is an important industry, and much cheese is exported; but the specialty of the canton is watch-making, which occupies 18,000 to 20,000 persons, and is prosecuted in detail at the homes of the work-people in the rural districts, where some families manufacture only special parts of the machinery, while others are engaged solely in putting together the separate portions: the watches thus prepared are exported in large quantities to every part

of Europe and America. The annual value of the total product of watches (1880) exceeded $5,000,000. The chief seats of the manufacture are the retired and lofty villages of Chaux-de-Fonds (q.v.) and Le Locle (q.v.) Muslin-printing employs more than 10,000 persons, and lace is extensively made by the country-women of the Val de Travers.

The history of N. was identical with that of Burgundy, till the 11th c.; and after the principality had been for a time incorporated with the territories of the Counts of Chalons, to whom it had been granted 1288, by Rudolph of Hapsburg, it passed to the House of Longueville. In 1707, on the extinction of the N. branch of the latter family, 15 claimants advanced more or less valid pretensions to the N. territory. Frederick I. of Prussia, who based his claim to the principality of N. on the ground of his descent from the first Prince of Orange, a descendant of the House of Chalons, was the successful candidate; and from his time it continued associated with Prussia till 1806, when Napoleon bestowed it upon General Berthier; but in 1814, it was restored to the House of Brandenburg. This connection with the Prussian monarchy has been wholly dissolved since 1857, and N. is now a member of the Swiss Confederation—Pop. (1870) 97,284; (1880) 103,732: Prot., except 9,000 to 10,000 Rom. Catholics. More than 17,000 families speak French, and 2,700 German.

NEUCHATEL′, or NEUFCHATEL′, or NEU′ENBURG: chief town, and cap., of the canton of N. It is on a magnificent site on the n.w. shore of the Lake of N. and is noted for its many charitable and literary institutions, largely gifts of private munificence; and for the beauty of its environs. The trade is considerable, chiefly in wine, watches, lace, and liqueurs. Pop. (1880) 15,612.

NEUCHATEL′ (or NEUFCHATEL,′ or NEU′ENBURG), LAKE OF, known sometimes as the LAKE OF YVERDUN: lake of Switzerland, in the valley of the Aar; 25 m. long, 6 m. in greatest breadth, 500 ft. in greatest depth; 92 sq. m.; 1,424 ft. above sea-level. The Thiéle which flows into it at its s.w. angle is also its outlet through the neighboring lake of Bienne into the Aar. The n.w. shore is cultivated and peopled. The scenery has far less grandeur and beauty than that of some other Swiss lakes. The lake abounds in fish, and bears a large traffic. It is liable to severe westerly storms.

NEU-CHWANG′: see YING-TZE.

NEUHAUS, *noy′howss:* town of Bohemia, on the Nescharka, about 70 m. s.s.e. of Prague. Its palace, belonging to Count Czerny, is a splendid edifice. Cloth, paper, and chemical products are manufactured. Pop. (1880) 8,703.

NEUHAUSEL, *noy'howss-ĕl* (Hung. *Ersek-Ujvar,ĕr-shĕk'ô-ē-vâr'*): town of Hungary, on the right bank of the Neutra, 74 m. n.w. of Pesth, by the Vienna and Pesth, railway. It was formerly strongly fortified, and important in the Turkish wars. No traces of its fortifications now remain. Pop. (1880) 10,584, engaged chiefly in agriculture and rearing of cattle.

NEUILLY, *nĕh-yē*, called sometimes NEUILLY-SUR-SEINE,*-sür-sān'*, in distinction from several less important towns: town of France, dept of Seine, on the right bank of the river Seine, immediately n. of the Bois de Boulogne. N. may now be regarded as a suburb of Paris, with which it is connected by several streets, or roads, lined with numerous villas. Here, near the Seine, and in a large and beautiful park, formerly stood the Château de N. built by Louis XV., and the favorite residence of Louis Philippe, which was burned at the revolution in 1848. The park was also then divided into lots for sale, the consequence being a rapid increase of houses. N., has manufactures of porcelain and starch, chemical works and distilleries. When Louis Philippe abdicated, and took refuge in England, he assumed the title Count de N.—Pop. (1881) 25,235.

NEUMÜNSTER, *noy'mün-stĕr:* prosperous manufacturing and market town of Holstein, on the Schwale, one of the head-waters of the Stoer; and on the railway between Altona and Kiel, 19 m. s by w. from Kiel. There are large woolen and linen factories, tanneries, dye-works, and breweries. Pop. (1875) 10,124; (1880) 11,623.

NEURAL, a. *nū'răl* [Gr. *neuron*, a sinew, a nerve]: pert. to the nerves or nervous system; denoting the arch of the vertebra. NEURAL ARCH, that which protects the spinal cord.

NEURALGIA, n. *nū-răl'jĭ-ă* [Gr. *neuron*, a nerve; *algos*, pain]: violent pain of a nerve, as in the head or face. NEURAL'GIC, a. *-jĭk*, pert. to or afflicted by neuralgia.—*Neuralgia* designates pain of a purely nervous character, usually unaccompanied by inflammation, fever, or any appreciable change of structure. The pain occurring in paroxysms, usually followed by complete remissions, is of every possible degree and character, described in different cases as piercing, tearing, burning, etc. These paroxysms may occur at intervals of a few seconds only, or daily or on alternate days, or separated by much longer intervals, often, but not always, of regular length, With the pain, there is frequently spasmodic twitching of adjacent muscles. The duration of the disease is very uncertain. The patient may have only a single attack, or he may have recurring attacks for months, years, or even for his whole life; it is, however, very seldom that the disease occurs but once. Death scarcely ever results directly from this affection, but the pain may, by its severity and persistence, gradually undermine the constitution.

The disease may attack any part of the body where there are nerves; but in no part does it occur so frequently as in the face, when it is popularly known as *Tic-douloureux;* its seat being in the facial branches of the fifth pair of nerves (the trifacial—see NERVOUS SYSTEM, fig. 2). The following graphic description of the ordinary varieties of this form of N. is from Dr. Watson's *Lectures on the Principles and Practice of Physic:* 'When the uppermost branch of the trifacial nerve is the seat of the complaint, the pain generally shoots from the spot where the nerve issues through the superciliary hole; and it involves the parts adjacent, upon which the fibrils of the nerve are distributed—the forehead, the brow, the upper lid, sometimes the eyeball itself. The eye is usually closed during the paroxysm, and the skin of the forehead on that side corrugated. The neighboring arteries throb, and a copious gush of tears takes place. In some instances, the eye becomes blood-shotten at each attack; and when the attacks are frequently repeated, this injection of the conjunctiva may become permanent.

'When the pain depends upon a morbid condition or morbid action of the middle branch of the nerve, it is sometime quite sudden in its accession, and sometimes comes on rather more gradually; being preceded by a tickling or pricking sensation of the cheek, and by twitches of the lower eyelid. These symptoms are shortly followed by pain at the infra-orbitary foramen, spreading in severe flashes (so to speak) over the cheek, affecting the lower eyelid, ala nasi, and upper lip, and often terminating abruptly at the mesial line of the face. Sometimes it extends to the teeth, the antrum, the hard and soft palate, and even to the base of the tongue, and induces spasmodic contractions of the neighboring muscles.

'When the pain is referrible to the inferior or max-

illary branch of the fifth pair of nerves, it darts from the mental foramen, radiating to the lips, the alveolar processes, the teeth, the chin, and to the side of the tongue. It often stops exactly at the symphysis of the chin. Frequently it extends in the other direction, to the whole cheek and to the ear. During the paroxysm, the features are liable to be distorted by spasmodic action of the muscles of the jaw, amounting sometimes to tetanic rigidity, and holding the jaw fixed and immovable.

'The paroxysms of suffering in this frightful disease are apt to be brought on by apparently trivial causes—by a slight touch, by a current of air blowing upon the face, by a sudden jar or shake of the bed on which the patient is lying, by a knock at the door, or even by directing the patient's attention to his malady, by speaking of it or asking him questions about it. The necessary movements of the face in speaking or eating are often sufficient to provoke or renew the paroxysm. At the same time, firm pressure made upon the painful part frequently gives relief, and causes a sense of numbness to take the place of the previous agony' (I. 723, 724).

Tic-douloureux is the most frequent form of severe N.; the reason probably being, that the trifacial nerve, lying superficially, and being distributed over a part of the surface usually unprotected by any artificial covering, is liable to be affected by atmospheric influences. Among other seats of N. are the arm, especially the forearm, the spaces between the ribs, especially between the sixth and ninth, and the lower extremity, where it most frequently affects the sciatic nerve, giving rise to the affection known as Sciatica, which, however, is not always pure neuralgia (see SCIATICA).

The causes of N. are various. Excluding inflammation of the nervous trunk or *neuritis*, the pain may be excited by a tumor pressing on the nerve, or originating in its substance; or by roughness of a bony surface with which the nerve may be in contact, as when it passes through a foramen; or it may be due to tumors within the cranium, or a morbid state of the spinal cord. Sometimes, again, irritation applied to *one* branch of a nerve will give rise to pain at the extremity of *another* branch of the same nerve, the sensation being reflected along the branch not directly exposed to the irritation. In this way we may explain the pain in the shoulder which often accompanies disease of the liver; the pain in the thigh often associated with irritation of the kidney; the pain in the left arm, which is often coincident with disease of the heart, etc. Persons suffering from debility, anæmia, and a gouty or rheumatic constitution, are so especially liable to N., that these conditions—as also exposure to malarious influences—must be placed among the predisposing causes. Among the exciting causes exposure to cold and wet, or to a cold, dry east wind, is the most frequent; but fatigue, strong mental

emotions, abuse of tea, coffee, tobacco, and alcoholic drinks, a wound or bruise, the retrocession of gout, rheumatism, or cutaneous eruptions, etc., occasionally excite the disease.

The resources of the materia medica have been exhausted in searching for remedies for this cruel disease. Dr. Elliotson believes that 'in all cases of N., whether exquisite or not, unaccompanied by inflammation, or evident existing cause, iron is the best remedy;' and there can be no doubt that when the disease is accompanied with debility and paleness, no remedy is likely to be so serviceable. If the digestive organs are out of order, the N. may frequently be removed or alleviated by correcting their unhealthy state. 'Dr. Rigby tells us that having suffered in his own person an intense attack of tic-douloureux, which opium did not assuage, he swallowed some carbonate of soda dissolved in water. The effect was almost immediate; carbonic acid was eructed, and the pain quickly abated. In this case, the pain depended on the mere presence of acid in the stomach. More often the cause of offense appears to lie in some part of the intestines; and purgatives do good. Sir Charles Bell achieved the cure of a patient on whom much previous treatment had been expended in vain, by some pills composed of cathartic extract, croton oil, and galbanum. He mixed one or two drops of the croton oil with a drachm of the compound extract of colocynth; and gave five grains of this mass, with ten grains of the compound galbanum pill, at bedtime. Other cases have been since reported, both by Sir Charles and by others, in which the same prescription was followed by the same success.'—Watson, *op. cit.* p. 727.

When the disease occurs in a rheumatic person, iodide of potassium (from thee to five grains taken in solution three times a day before meals) sometimes gives great relief. When the paroxysms occur periodically—e.g., with interval of 24 or 48 hours—sulphate of quinine in doses of 10 to 20 grains between the paroxysms, will usually effect a cure; and if the disease resist comparatively small doses, the quantity may be increased to half a drachm, or a drachm if necessary. Arsenic acts in the same manner as quinine in these cases, but usually less effectually.

The inhalation of chloroform will sometimes give permanent relief, and always gives temporary ease, and shortens the period of suffering.

The injection of a certain quantity of a solution of muriate of morphia, by means of a sharp-pointed syringe, into the cellular tissue beneath the skin over the painful spot, often gives immediate relief. At one time—about half a century ago—it was a common practice to divide the trunk of the painful nerve, with the object of cutting off the communication between the painful spot and the brain; but in many instances the operation signally failed, and it is now never resorted to. A much simpler operation, namely, the extraction of a canine tooth, has

often been found to give permanent relief in facial N., and in such case a careful examination of the teeth should usually be made.

Local applications can be of no permanent service in cases where the pain results from organic change, or from general constitutional causes; they will, however, orten give considerable temporary relief. Among the most important local applications may be mentioned laudanum, tincture of aconite (or aconitina ointment, in the proportion of one or two grains to a drachm of simple ointment or cerate), belladonna-plaster, and chloroform (which should be applied upon a piece of linen saturated with it, and covered with oiled silk, to prevent evaporation). . But remedies of the nature of many of those indicated above should not usually be administered except under orders by a physician.

Lastly, N. being a purely nervous affection, is often influenced by means calculated to make a strong impression on the mind of the patient; hence it is that galvanic rings, electric chains, mesmeric passes, and, some would add, homœopathic globules, with other applications, which are supposed to act more on the mind than on the body of the patient, occasionally effect a cure.

NEURAPOPHYSIS, n. *nū'ră-pŏf'ĭ-sĭs* [Gr. *neuron*, a sinew, a nerve, and Eng. *apophysis*] : in *anat.*, the part projecting from a vertebra which aids in forming the canal that protects the spinal cord.

NEURECTOMY, n. *nū-rĕk'tŏm-ĭ* [Gr. *neuron*, a nerve; *tomē*, a cutting; *temnō*, I cut] : operation of cutting out a nerve or part of a nerve.

NEURICITY, n. *nū-rĭs'ĭ-tĭ* [formed on analogy with electricity—from Gr. *neuron*, a nerve] : in *physiol.*, scientific name for what was formerly known as nervous force or nervous fluid.

NEURILEMMA, n. *nū'rĭ-lĕm'mă* [Gr. *neuron*, a sinew, a nerve; *lemma*, skin, bark] : in *anat.*, the delicate fibrous sheath of a nerve. NEU'RILEM'MATOUS, a. *-mă-tŭs*, connected with the neurilemma.

NEURIN, n. or NEURINE, *nū'rĭn* [Gr. *neuron*, a nerve] : the matter which composes the nervous system, containing an alkaline base. NEURITIS, n. *nū-rī'tĭs*, inflammation of a nerve. The disease is rare, and not very well defined. The symptoms closely resemble those of neuralgia. Rheumatism seems, in most cases, to be the cause of the disease, which must be treated by bleeding, leeching, purging, and low diet. Anodynes also are required for relief of the pain; and of these, Dover's Powder, in moderately full doses, is perhaps the best. NEURO-, *nū'rō-*, indicating connection with a nerve or nerves.

NEUROGLIA, n. *nū-rŏg'lĭ-ă*, usually *nū-rŏ-glī'ă* [Gr. *neuron*, a nerve; *glia*, glue] : a net-work of fine connective tissue which traverses the nervous matter both in the brain and spinal cord.

NEUROLOGY, n. *nū-rŏl'ŏ-jĭ* [Gr. *neuron*, a nerve; *logos*, a discourse]: a scientific description of the nerves of animal bodies; the doctrine of the nerves. NEU'ROLOG'ICAL, a. *-lŏj'ĭ-kăl*, pert. to. NEUROL'OGIST, n. *-rŏl'ŏ-jĭst*, a writer on the nerves.

NEUROMA, n. *nū-rō'mă* [Gr. *neuron*, a nerve]: a fibrous tumor developed in the sheath of a nerve.

NEUROPATHY, n. *nū-rŏp'ă-thĭ* [Gr. *neuron*, a nerve; *pathos*, suffering]: a term applied generally to affections of the nervous system.

NEUROPODIUM, n. *nū'rō-pō'dĭ-ŭm* [Gr. *neuron*, a nerve; *podes*, feet]: the ventral or inferior division of the foot tubercle of an Annelid; the ventral oar.

NEUROPTERA, n. plu. *nū-rŏp'tĕr-ă*, or NEUROP'TERANS, n. plu. *-tĕr-ănz* [Gr. *neuron*, a nerve; *pteron*, a wing]: an order of mandibulate insects, having four nearly equal and membranous wings, all adapted for flight, divided by their nervures into a delicate net-work of little spaces, and not covered with fine scales, as in the *Lepidoptera*. The wings are often extended horizontally when at rest, nearly as in flight; but the position is various. The form of the wing is generally somewhat elongated. The body is generally much elongated, particularly the abdomen. The head is often large, the compound eyes very large, and there are often simple or stemmatic eyes. The habits are predaceous, at least in the larva state; often also in the pupa and perfect states, the food consisting of other insects, often caught on the wing. The power of flight is accordingly great in many. The larvæ and pupæ are often aquatic. The females have no sting, and only a few have an ovipositor. The metamorphosis is complete in some, incomplete in others. Dragon-flies, May-flies, scorpion-flies, ant-lions, and termites, or white ants, belong to this order. NEUROP'TER, n. one of the order of *Neuroptera*. NEUROP'TERAL, a. *-tĕr-ăl*, or NEUROP'TEROUS, a. *-tĕr-ŭs*, nerve-winged; pert. to the order *Neuroptera*.

NEUROPTERIS, n. *nū-rŏp'tĕr-ĭs* [Gr. *neuron*, a nerve; *pteris*, a fern]: a genus of fossil ferns occurring abundantly in the Coal-measures.

NEUROSIS, n. *nū-rō'sĭs*, NEUROSES, n. plu. *-sēz* [Gr. *neuron*, a nerve]: a disease which depends on some perverted nervous influence; nervous affections or diseases in which sense and motion are impaired without any local disease.

NEUROSKELETON, n. *nū'rō-skĕl'ĕ-tŏn* [Gr. *neuron*, a nerve, and Eng. *skeleton*]: the deep-seated bones of the vertebral skeleton connected with the nervous system.

NEUROTIC, n. *nū-rŏt'ĭk* [Gr. *neuron*, a nerve]: disease of the nerves: also a medicine used for strengthening the nerves. Recently the term has been applied specially to medicines affecting specifically the nerves of motion; e.g., alcohol, ether, chloral, opium, bromide, quinine, aconite, digitalis, etc: ADJ. seated in the nerves, or pert. to them.

NEUROTOME, n. *nū'rō-tōm* [Gr. *neuron*, a nerve; *tomē*, a cutting]: the nervous section or segment of the skeleton; a long, narrow, two-eyed scalpel employed in dissecting the nerves. NEUROTOMY, n. *nū-rŏt'ŏ-mĭ*, the dissection of a nerve. NEU'ROTOM'ICAL, a. *-tŏm'ĭ-kăl*, pert. to. NEUROT'OMIST, n. one who dissects the nerves.

NEUSATZ, *noy'sâts*, or NEOPLAN'TA, or UJ-VIDÉK, *ō-ē-rē-dāk'*: town of the Austrian empire in the Hungarian province of Bács, on the left bank of the Danube opposite Peterwardein. Its origin dates from 1700, and by the year 1849 it numbered nearly 20,000 inhabitants. A bridge 840 ft. in length, extends between N. and the town and fortress of Peterwardein. N. is the seat of the Greek non-united Bishop of Bács. 1849, June 11, it was taken from the Hungarian insurgents by the imperial troops, and was almost wholly destroyed. It has been rebuilt in excellent style. N., which has become a literary and religious centre for the Serbs of Hungary, is a station for steamers on the Danube, and has an important and active trade. Pop. (1849) nearly 20,000; (1880) 21,381.

NEUSE, *nūs*, RIVER: stream in N. C., rising near the middle of the n. boundary of the state, and, after a s.e. course of 250 m., passing through a broad channel into Pamlico Sound, which communicates by several inlets with the Atlantic Ocean. The N. forms the harbor of New Berne.

NEUSIEDL, *noy'sēdl*, LAKE [Hung. *Ferto-tava*, *fĕr'to tŏh'vŏh*]: lake on the n.w. frontier of Hungary, 22 m. s.e. of Vienna; 23 m. in length, and about 6 m. in average breadth, with a mean depth of 13 ft. Its waters are light-green in appearance, and brackish in taste. The slopes of the Leitha Mts. in the vicinity produce excellent wine.

NEUSOHL, *noy'zōl* [Hung. *Besztercze-Banya*, *bĕss-tĕrt' sā-bân'yŏh*]: beautiful and thriving town of Hungary, chief town of the richest mining district in the country, in a hill-inclosed valley on the right bank of the Gran, about 85 m. n. of Pesth. The people are mostly employed in the copper and iron mines of the vicinity, in the smelting-houses, and in the manufacture of beet-root sugar, paper, colors, etc. N. is an ancient town, the seat of a bishop, and contains a beautiful cathedral, a bishop's palace, and two evangelical churches, and several other handsome edifices. Pop. (1880) 7,159, including with the town proper five suburbs.

NEUSS, *noyss:* ancient and flourishing manufacturing town of Rhenish Prussia, near the left bank of the Rhine, with which it is connected by the river Erit, 4 m. s.w. of Düsseldorf. Its church of St. Quirinus, a beautiful edifice, and a notable specimen of the transition from the round to the pointed style, is supposed to have been built 1209. N. is the principle grain market of the province, and carries on manufactures of woolen and other cloths, ribbons, hats, vinegar, etc. It is supposed to be the *Novesium* of the Romans, sacked by Attila 451. Pop. (1880) 17,495 of whom 16,077 were Rom. Catholics; (1885) 20,036.

NEUSTADT, *noy'stât* (Polish, *Prudnitz*): town of Prussion Silesia, 29 m. s.w. of Oppeln; is the seat of considerable manufacturing industry, woolen and linen fabrics being the staples. Damask-weaving alone employs 660 hands and 380 looms. Pop. (1880) 14,292, mostly Rom. Catholics.

NEU'STADT, or WIENER-NEUSTADT, *vē'nér-noy'stât:* one of the most beautiful towns of Lower Austria, called, from its loyalty, 'the ever-faithful town' (*ewig getreue Stadt*); 28 m. s. of Vienna, on the Vienna and Gloggnitz railway, connected with the capital by a canal also. It is surrounded by a broad and deep ditch, and by a fortified wall pierced by four gates. The town is overlooked by the large old castle of the Dukes of Babenberg, now a military acad. for the preparatory instruction of officers of the line: it accommodates 400 to 500 pupils. The castle contains a fine Gothic chapel (date 1460), rich in painted windows. It is the burial-place of Emperor Maximilian I. 1834, Sep. 14, the whole town, with the exception of 14 houses, was destroyed by a dreadful conflagration, with loss of many lives. The new town has been laid out with great taste and regularity. The canal (40 m. in length) and the railway to Vienna, and the converging roads from Styria and Hungary, are sources of prosperity to N. In N. machinery is extensively constructed; and sugar-refining and manufactures of silk, velvet, and cotton fabrics, fayence, leather, etc., are carried on. Pop. (1880) 23,735.

NEUSTADT-AN-DER-HARDT, *noy'stât-ân-dĕr-hârt:* small town of Rhenish Bavaria, charmingly situated on the Speyerbach, at the foot of the Hardt Mountains, 12 m. n. of Landau. Its church, with several tombs and curious monuments of the Counts Palatine, and with some ancient fresco-paintings, was finished in the 14th c. The Rhenish 'grape-cure' here draws many visitors. N. has manufactures of paper, starch, gold and silver plate, furniture, cloth, oil, brandy, etc. Pop. (1880) 11,411, of whom 6,987 Protestants.

NEUSTADT-EBERSWALDE, *noy'stât-ā'bérs-vâl-déh* (since 1876 called officially *Eberswalde* only): town of Prussia, province of Brandenburg, 28 m. n.e of Berlin. It is well known for its mineral springs, and for its extensive and important manufactures in steel, iron, copper, brass, paper, and porcelain. Pop. (1880) 11,524, mostly Protestants.

NEUSTADTL-AN-DER-WAAG, *noy'stâtl-ân-dĕr-vâg:* town near the n.w. frontier of Hungary, 33 m. n.n.w. of Neutra. Here excellent red wine is grown, and there is good trade in grain, wool, sheep-skins, and wax. Pop. (1880) 5,164, nearly half of whom are Jews.

NEU STETTIN, *noy stĕt-tēn':* manufacturing town of Prussia, province of Pomerania, dist. of Köslin, 92 m. s.w. from Danzig, on the s. shore of the Vilm See. It is cap. of a circle, and a place of some importance. Pop. (1875) 6,971; (1880) 8,604.

NEU-STRELITZ, *noy-strā'lĭts:* city, capital and residence of the court of the grand-duchy of Mecklenburg-Strelitz, pleasantly situated in a hilly district, between two lakes, 60 m. n.n.w. of Berlin. It was founded 1733, is in the form of an eight-rayed star, and contains the ducal palace, with a library of 70,000 vols., and having magnificent gardens. Pop. (1880) 9,407, supported chiefly from the expenditure of the court, and by brewing and distilling. A mile s. of the town is Alt-Strelitz, with the largest horse-market in the duchy.

NEUSTRIA, *nūs'trĭ-a*, or WEST FRANCE (*Francia Occidentalis*): name given in the times of the Merovingians and Carlovingians to the w. portion of the Frank empire, after the quadruple division of it in 511. N. contained three of these divisions. It extended originally from the mouth of the Scheldt to the Loire, and was bounded by Aquitania on the s., and by Burgundy and Austrasia (*Francia Orientalis*) on the e. The principal cities were Soissons, Paris, Orleans, and Tours. Bretagne was always loosely attached to N., of which the strength lay in the Duchy of France. After the cession of the territory afterward called Normandy to the Normans 912, the name N. soon fell into disuse.

NEUTER, a. *nū-tér* [L. *neuter*, neither the one nor the other—from *ne*, not; *uter*, which of the two, one or other]: taking no part with either side; indifferent; of neither sex; neither active nor passive—applied to verbs: N. an animal fully developed which has no organs of generation, as the working-bee; a plant having neither stamens nor pistols; one who takes no side in a contest or controversy. NEU'TRAL, a *-trăl* [L. *neutrālis*]: not assisting or acting with either party; indifferent (see NEUTRALS): neither acid nor alkaline: in *chem.*, applied to salts composed of an acid and a base in such proportions that they counteract or render imperceptible each other's properties (see SALTS). NEU'TRALLY, ad. *-lĭ*. NEUTRAL'ITY, n. *-trăl-ĭ-tĭ*, the state of taking no part on any side; indifference. NEU'TRALIZE, v. *-īz*, to render neutral or inert; to counteract or render imperceptible the properties of a body by causing it to combine with another of different properties. NEU'TRALIZING, imp.: ADJ. counteracting or rendering inert the peculiar properties of a body; reducing to a state of inactivity. NEU'TRALIZED, pp. *īzd*: ADJ. reduced to neutrality. NEU'TRALIZER, n. *-ī-zér*, that which renders inert the peculiar properties of any body. NEU'TRALIZA'TION, n, *-ĭ-zā'shŭn* [F.—L.]: the act of reducing to a state of neutrality; in *chem.*, the process by which an acid and a base are combined in such proportions as to counteract or render inert the properties of both. NEUTRAL AXIS. imaginary line through any body which is being subjected to a transverse strain; separating the forces of extension from those of compression. If the ratio of the resistances to extension and compression were the same for all substances, and depended merely on the form of the body, then in all bodies of the same form the neutral axis would have a definite geometrical position; but it has been satisfactorily proved, by Eaton Hodgkinson, that this ratio has a separate value for each substance. In wood, where the ratio is one of equality, the neutral axis in a beam supported at both ends, whose section is rectangular, passes lengthwise through the centre of the beam; while in cast-iron, in which the resistance to compression is greater than that to extension, it is a little above, and in wrought iron, in which the contrary is the case, it is a little below, the centre. NEUTRAL TINT or COLOR, a factitious gray pigment used in water-colors, composed of blue, red, and yellow in certain proportions.

NEUTITSCHEIN, *noy'tĭt-shīn*: small manufacturing town of Moravia, on the Titsch, 80 m. n.e. of Brünn. It contains an old castle, and carries on manufactures of cloth and woolen goods, dyeing, and wagon-making. Pop. (1880) 10,274.

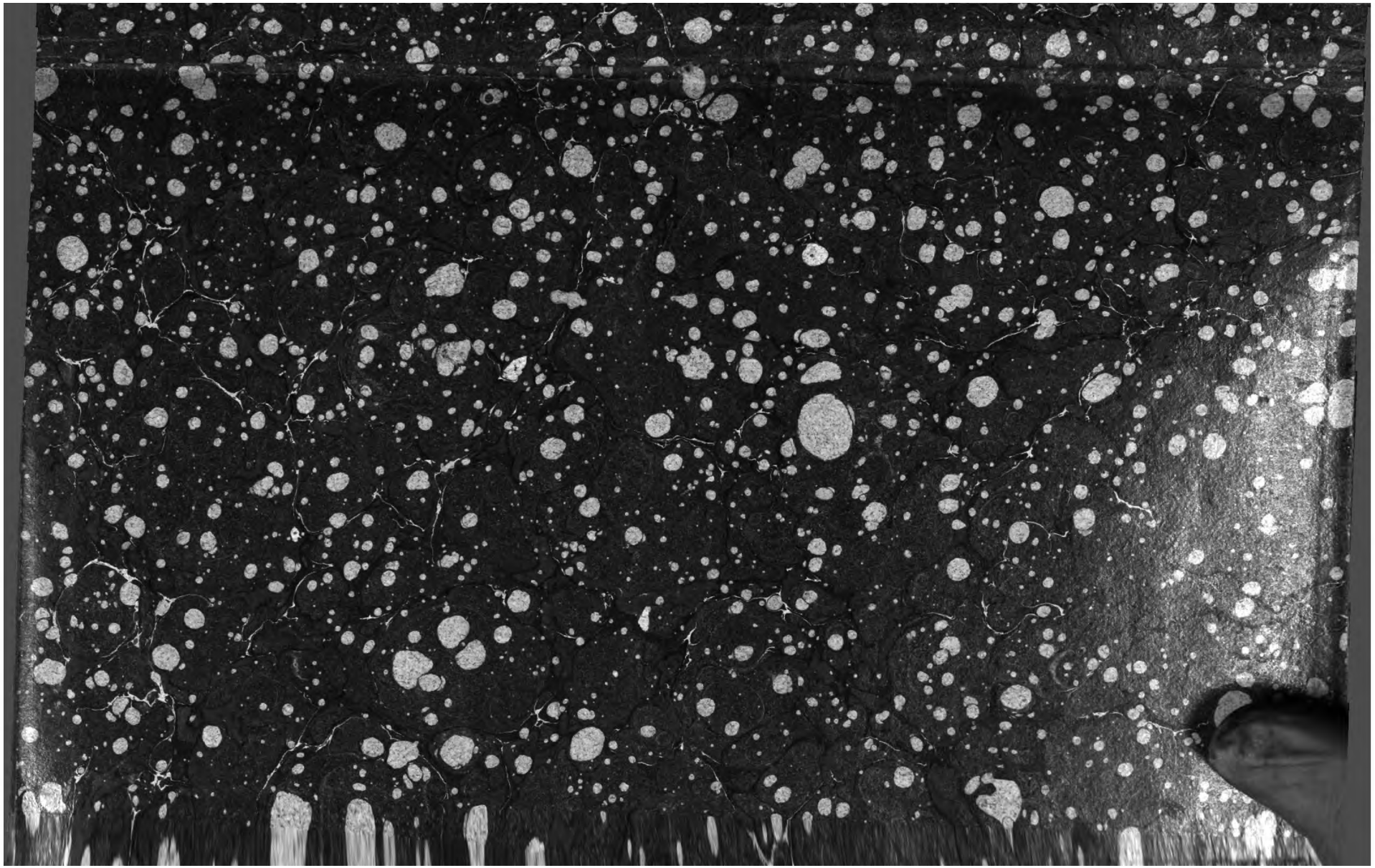
NEUTRA, *noy'trâ:* town of Hungary, capital of the county of N., on the river N., 72 m. n.n.w. from Pesth. It is a very old town, having been the residence of a Moravian prince in the 9th c., before the Magyar invasion. Weaving is carried on to some extent, and N. being not far from the Moravian frontier, has considerable transit trade. Pop. (1880) 8,660.

NEUTRALS: nations who, when a war is in process, take no part in the contest, and evince no particular friendship for, or hostility to, any of the belligerents. As a general rule, N. should conduct themselves with perfect impartiality, and do nothing which can be considered as favoring one belligerent more than another.

The duties and obligations of N. at sea have given rise to many complicated questions. It is allowed on all hands that a neutral state forfeits her character of neutrality by furnishing to either belligerent any of the articles that come under the denomination of Contraband of War (q.v.). If she does so, the other belligerent is warranted in intercepting the succors, and confiscating them as lawful prize. Contraband of war, besides warlike stores, has sometimes been held to include various other articles, a supply of which is necessary for the prosecution of the war; and it has been doubted how far, in some circumstances, grain, hay, and coal may not come under that category.

An important question regarding the rights of neutrals is, whether enemies' goods not contraband of war may be lawfully conveyed in neutral bottoms. The principle that free ships make free goods was long resisted by Great Britain and other countries, and the general understanding has been, that belligerents have a right of visiting and searching neutral vessels for the purpose of ascertaining—1st, whether the ship is really neutral, as the hoisting of a neutral flag affords no absolute security that it is so; 2d, whether it has contraband of war or enemies' property on board. Neutral ships have therefore been held bound to provide themselves with passports from their government, and such papers as are necessary to prove the property of the ship and cargo, and it is their duty to heave to when summoned by the cruisers of either belligerent. It has been considered that a neutral ship which seeks to avoid search by crowding sail or by open force, may be captured and confiscated. When a merchant-ship is sailing under convoy of a vessel of war, it has been said that the declaration of the officer in command of the convoy that there is no contraband of war or belligerent property on board, is sufficient to bar exercise of the right of search.

A declaration having important bearings on the rights of N. was adopted by the plenipotentiaries of Great Britain, Austria, France, Prussia, Russia, Sardinia, and Turkey, in congress at Paris, 1856, Apr. 16: see INTERNATIONAL LAW.

It has sometimes been proposed to exempt private property at sea from attack during war—such a project,

however, seems inexpedient. There may be a propriety in respecting the property of individuals on land, in a time of war, because its destruction, however injurious to the persons immediately concerned, can have little influence on the decision of the contest But at sea, private property is destroyed, because those from whom it is taken, being purveyors or carriers for the community at large, its loss must seriously affect the public, and have no small influence in bringing the contest to an end. See BLOCKADE: PRIVATEER.